Relationship Transitions, Fatherhood, and the Prevention of Child Maltreatment

William Schneider

Submitted in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy
under the Executive Committee
of the Graduate School of Arts and Sciences

COLUMBIA UNIVERSITY
2016

Abstract

Relationship Transitions, Fatherhood, and the Prevention of Child Maltreatment

William Schneider

Child maltreatment is a prevalent and pernicious problem in the United States. In 2013, nearly 680,000 children were found to be victims of maltreatment, with actual instances of maltreatment likely significantly higher. Exposure to maltreatment has negative short and long-term impacts on child wellbeing and development. Poverty and single parenthood have long been shown to be primary determinants in the etiology of child maltreatment. Changes in family structure over the last 50 years have resulted in dramatic declines in the number of children who grow up in a two parent married household. Indeed, recent research indicates that large numbers of children will experience living with a single mother as well as experiencing multiple parental relationships throughout their childhoods.

At the same time that non-marital relationships have become increasingly common, ideas about the role of fathers in parenting have changed as well. Traditional normative views of fathers as breadwinners have given way to an increased focus on the ways in which father involvement in parenting can influence positive child development. In contrast, research on child maltreatment has largely left the possible role of fathers in protecting against child maltreatment unaddressed. To date, little research has investigated the ways in which mothers' relationship transitions, as opposed to static measures of marital status, might be associated with the risk for child maltreatment or how fathers' involvement in parenting may buffer the risk for maternal child maltreatment. To address this gap in the literature, this dissertation is structured around three empirical chapters described below.

Chapter 1: Describe associations between mothers' relationship transitions and the risk for child maltreatment and investigate possible mediators

Family structure as a risk for child maltreatment has long been viewed as a static state in the child maltreatment literature. Drawing on data from the Fragile Families and Child Wellbeing Study, the author uses a series of individual fixed effects models to investigate whether particular types of relationship transitions over children's first decade of life are associated with increased risk for maternal and paternal child abuse and maternal neglect. Findings both question and confirm a number of longstanding theoretical and empirical findings from the child maltreatment literature. Results indicate that transitions to being single are associated with increased risk for maternal child abuse and neglect. In addition, the frequency and severity of paternal harsh parenting may be closely linked with the nature of fathers' relationship transitions. Last, results largely do not provide support for the theory that the presence of social fathers increases mothers' risk for engaging in child abuse or neglect.

Chapter 2: Use propensity score matching to investigate whether non-resident fathers' presence at the birth of a child increases father involvement in parenting over children's first five years of life.

This paper examines associations between unmarried, non-resident, fathers' presence at the time of birth of a child and paternal involvement in direct care and play activities when children were 1, 3, and 5 years old. It draws on rich longitudinal data from the Fragile Families and Child Wellbeing Study, a longitudinal birth cohort study with families interviewed in the hospital at the time of birth and re-interviewed when children were, 1, 3, 5 years old (N = 749). The study uses propensity score matching, regression-adjusted OLS models, city fixed effects,

and a robust set of parent, child, and "intent to parent" characteristics to estimate the effect of paternal presence at birth on paternal parenting. Results indicate that non-resident father presence at the time of birth substantially increases paternal direct care and play activities when children are 1, 3, and 5 years old, with diminishing returns as children age.

Chapter 3: Examine the role of non-resident fathers' economic contributions and involvement in parenting in moderating the association between mothers' transitions to being single and the risk for child maltreatment, and investigate possible differences by race/ethnicity.

Single motherhood has long been linked to the risk for child maltreatment. However, little is known about the role of fathers in buffering mothers' risk for child maltreatment. Using data from the Fragile Families and Child Wellbeing Study, this paper investigates (1) the ways in which non-resident fathers' economic contributions and involvement in parenting may moderate associations between mothers' transitions to being single and the risk for child maltreatment, and (2) whether these processes vary by race/ethnicity. Results indicate that mothers' transitions to being single are not strongly associated with the risk for child abuse. However, mothers' transitions to being single are associated with an increase in the risk for child neglect, and this is moderated by non-resident father involvement. Last, Black, but not other, mothers' transitions to being single are associated with the risk for child abuse, and are largely not moderated by non-resident father involvement.

Table of Contents

List of Figures and Tables

Acknowledgements

I would like to thank my dissertation advisor, Jane Waldfogel. From my entrance in the masters program and throughout my doctoral studies, Jane has been a steady source of advice and guidance. She has aided me in becoming a researcher, encouraged me in applying for grants and fellowships, and supported me in pursuing my interests. This dissertation would not have been possible without her. I would also like to thank Jeanne Brooks-Gunn for helping me to learn about developmental psychology, and for the privilege of working and learning from her over the last four years. I would like to thank my dissertation committee members. Irwin Garfinkel for helping me develop my dissertation proposal; Ronald Mincy, for advise on father involvement; and Sara McLanahan for instilling in me an interest in family and child wellbeing as a new research assistant, and supporting me throughout my doctoral studies.

I would like to thank Natasha Pilkauskas for innumerable hours of encouragement, advice, and guidance through the coursework and dissertation processes; Danny Schneider, for advice, counsel, and limitless patience. I would like to thank my parents, parents-in-law, Danny, Laura, Martha, Nathan, Emma, and Olive, for their support and encouragement as I pursued my goals. I would particularly like to thank my wife, Andrea. Andrea's love, support, advice, and partnership, has made this process both a possibility and a joy.

This research was supported by the Columbia Population Research Center (award R24HD058486 from the National Institute of Child Health & Human Development) for support to present Chapter 2 at the Population Association of America's Annual Meeting. The research was also supported by a grant from the Doris Duke Foundation Fellowship for the Promotion of Child Wellbeing and the Prevention of Child Maltreatment. Opinions reflect those of the author and do not necessarily reflect those of the granting agencies.

Dedication

This dissertation is dedicated to my wife, without whom it would not have been possible.

Chapter 1: Introduction

Child maltreatment in the United States remains stubbornly high. In 2013, the most recent year for which data is available, approximately 680,000 children were identified as victims of maltreatment (US DHHS, 2015). Traditional explanations of the determinants of child maltreatment have focused on the risks associated with individual psychopathology, poverty, and single parenthood (Berger, 2009). This literature has largely focused on the role of mothers in the risk for child maltreatment. However, a small body of theoretical and empirical research has increasingly focused on the role that fathers may play in increasing or reducing the risk for child maltreatment (Guterman & Lee, 2005).

A long literature has demonstrated that children growing up in non-married families do worse than their peers in two-parent married families (McLanahan & Sandefur, 1997). Stark changes in marriage trends have resulted in an increasing number of children who are born to non-married parents, and who will experience divorce, living with non-married cohabiting parents, or living with social fathers during their childhood (Bzostek, McLanahan, & Carlson, 2012). Although research on the role of family structure in child wellbeing has traditionally viewed marital status as a static state (one is viewed as being either married, cohabiting, or single), a growing empirical literature has sought to identify the importance of instability in modern relationships.

This dissertation is structured around three empirical chapters that explore (1) associations between mothers' relationship transitions and the risk for child maltreatment, (2) an important predictor of non-resident father involvement in parenting, and (3) the ways in which non-resident fathers' economic contributions and involvement in parenting may buffer

associations between mothers' transitions to being single and the risk for child maltreatment. The current chapter provides a brief introduction to the dissertation and describes its' organization.

Chapter 2 asks whether the nature of mothers' relationship transitions (transitions to marriage, cohabitation or single, with biological or social fathers) are differently associated with the risk for maternal child maltreatment, and whether associations are mediated by measures of mothers' health, economic wellbeing, and resources. Analyses in the chapter use pooled data from the first 9 years of the Fragile Families and Child Wellbeing Study, and draw on individual fixed effects models.

Chapter 3 addresses what is often referred to as "the magic moment." A body of theoretical and empirical work has documented that the time surrounding the birth of a child may mark a particularly optimistic time for parents about the future of their relationship and prospects for co-parenting (Gibson-Davis, 2014). In addition, a long literature has sought to understand both the determinants of non-resident fathers' involvement in parenting, and whether this involvement is beneficial for children (Amato & Gilbreth, 1999).

Drawing on data from the first 5 years of the Fragile Families and Child Wellbeing Study, I use propensity score matching, and a number of related methods, to investigate associations between non-resident fathers' presence at the birth of a child and fathers' later involvement in parenting. Using a robust set of pre-birth characteristics of mothers and fathers, I match non-resident fathers who were and were not present at the birth of their child and find that non-resident fathers' presence at the birth of a child is associated with increases in father involvement in direct care of their child and play activities 1, 3, and 5 years after the birth, with declining results over time.

Chapter 4 unites results from Chapters 2 and 3, and asks whether non-resident fathers' economic contributions and involvement in parenting moderates the association between mothers' transitions to being single and the risk for child maltreatment. In addition, it investigates whether there are differences in both mothers' risk for maltreatment and the moderating role of non-resident fathers' involvement, by race/ethnicity. Overall, I find that non-resident fathers' economic contributions and involvement in parenting moderates the risk for child neglect associated with mothers' transitions to being single among Black and white mothers, but with less compelling results for Hispanic mothers. I also find evidence that Black, but not white or Hispanic, mothers' transitions to being single are associated with the risk for child abuse.

Chapter 5 provides a summary of the results, a conclusion discussing how findings from Chapters 2-4 tie together and increase our understanding of the process involved in the prevention of child maltreatment, implications for social work practice and policy, and avenues for future research.

REFERENCES

Amato, P. R. & Gilbreth, J. G. (1999). Nonresident fathers and children's well-being: A meta-analysis. *Journal of Marriage and Family, 61*(3), 557-573.

Berger, L. M., Paxson, C., & Waldfogel, J. (2009). Income and child development. *Children and Youth Services Review*, *31*(1), 978-989.

Bzostek, S. H., McLanahan, S., & Carlson, M. J. (2012). "Mother's repartnering after a nonmarital birth. *Social Forces, 90*(3), 817-841.

Gibson-Davis, C. M. (2014). "Magic moment? Maternal marriage for children born out of wedlock." *Demography, 51*(4), 1345-1356.

McLanahan, S. & Sandefur, G. (1994). *Growing Up With a Single Parent: What Hurts, What Helps.* Cambridge, MA: Harvard University Press.

U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2015). Child maltreatment 2013. Available from http://www.acf.hhs.gov/programs/cb/research-data-technology/statisticsresearch/child-maltreatment.

Chapter 2: Relationship Transitions and the Risk for Child Maltreatment

INTRODUCTION

Child maltreatment remains a widespread and pernicious problem in the United States. In 2013, the most recent year for which data is available, state Child Protective Services (CPS) agencies received an estimated 3.5 million referrals for child maltreatment, including approximately 6.4 million children or 47.1 referrals per 1,000 children in the United States. Of those cases referred to CPS agencies, approximately 2.1 million were determined to be possible cases of maltreatment and received a disposition (US DHHS, 2015). Although overall rates of child maltreatment have declined since the 1990's (Finkelhor & Jones, 2006), there are indications that starting in 2009 rates began to increase once again (US DHHS, 2015).

Research on the ontology of child maltreatment has drawn on social-ecological models focusing on the multiple forces of individual, family, community, and societal factors that interact to contribute to the risk for child maltreatment (Belsky, 1984). A number of other theories have also focused on the possible causal effect of poverty and differences in the determinants of the risk for physical abuse and child neglect (Paxson & Waldfogel, 2003; Schneider, Brooks-Gunn, & Waldfogel, forthcoming).

Although limited, a secondary literature has begun to explore the role of fathers and men in the risk for child maltreatment (Guterman & Lee, 2005). Indeed, common across much of the extant literature and social policy is the prevailing notion that (1) children growing up with two biological parents are less likely to experience maltreatment than children growing up in a single parent or stepparent household (Berger, 2004; Daly & Wilson, 1996); (2) child abuse and child neglect may have different antecedents, with neglect more highly correlated with poverty (Drake

& Pandey, 1996); and (3) fathers are disproportionally responsible for child abuse given the amount of time they spend with children, compared to mothers (Margolin, 1992).

A growing literature indicates that relationship transitions may negatively affect parenting and children (Amato, 2005; Fomby & Cherlin, 2007; McLanahan & Lee, 2015; Osborne & McLanahan, 2007). Relationship transitions are a measure of relationship change, as opposed to marital status, which is a static measure of current relationship status. It is unclear whether or how relationship transitions might affect the risk for child maltreatment. In this paper, I use data from the Fragile Families and Child Wellbeing Study (FFCWS) to test three related hypotheses (Reichman, Teitler, Garfinkel, & McLanahan, 2001). First, that the nature of relationship transitions, as opposed to marital status, may be an important predictor of the risk for child maltreatment. Second, that relationship transitions may play differing roles in men and women's risk of child maltreatment. Third, that harsh parenting and neglect may be differentially affected by relationship transitions.

In addition to testing the main hypotheses, I carry out two additional sets of analyses. First, I investigate mediating processes, because if relationship transitions are predictive, it is important to understand if the risk is the result of individual psychopathology or changes in economic resources. Second, I analyze the potential moderating role of child age, drawing on evidence from the extant literature indicating that younger children may be at greater risk of experiencing child maltreatment, and that transitions that occur earlier in children's lives may be more detrimental to wellbeing.

BACKGROUND

Child maltreatment

No single universally accepted definition of child maltreatment exists. Child maltreatment, the overall term for child abuse and neglect, is defined and measured differently by the federal government, state governments and agencies, researchers, and policymakers (Slack, Holl, McDaniel, Yoo, and Bolger, 2004). One of the most widely used definitions of maltreatment stems from the 1974 federal Child Abuse Prevention and Treatment Act (CAPTA). CAPTA was the first federal statute to recognize child maltreatment, defining it as "any recent act or failure to act on the part of a parent or caretaker, which results in death, serious physical or emotional harm, sexual abuse or exploitation, or an act or failure to act which present an imminent risk of serious harm." Child abuse then, is the serious physical or emotional harm to a child (an act of commission) and child neglect is a failure to act that puts children at serious risk of harm (an act of omission).

Although often linked, child abuse and child neglect are thought to be distinct from one another in a number of ways. While child abuse has been the subject of the bulk of research in the child maltreatment literature, child neglect is much more prevalent. In 2013, 79.5% of victims of child maltreatment were neglected, 18% were physically abused, 9% were sexually abused, and 8.7% were psychologically maltreated (children may appear in multiple categories) (US DHHS, 2015). A range of literature indicates that neglect may be particularly strongly associated with low-income, in so far as it is often characterized by the insufficient provision of needed resources for children (Dubowitz et al., 2005; Martin & Walters, 1982; Pelton, 1978).

In the mid 1960's child maltreatment began to be widely recognized as a social problem (Kempe, Silverman, Steele, Droegemueller, & Silver, 1962). Early theories of the determinants of child maltreatment were largely drawn from psychiatric models in which individual psychopathology was thought to be the sole cause of child maltreatment. This psychiatric model

focused on mothers' use of drugs and alcohol, depression, and various personality disorders as the casual determinants of the risk for child maltreatment (Gil, 1971). Beginning the late 1970's, researchers began to recognize that psychopathology alone could not fully explain child maltreatment. A number of researchers including Garbarino (1977), Bronfenbrenner (1979), Belsky (1984 & 1993), Cichetti and Lynch (1993), and Sameroff (1998), proposed developmental-ecologically based theories that incorporated notions about the ways in which individual, family, community, and societal factors interact to increase or decrease the risk for child maltreatment.

Family structure and relationship transitions

The last 50 years have been marked by a dramatic increase in the number of children who experience parental divorce, spend time in a single parent household, live with a stepparent, or live with non-married cohabiting parents (Bumpass, & Lu, 2000). A growing share of children are born to unmarried parents (Bumpass, & Lu, 2000), and approximately 50% of children born to co-residential parents, and two-thirds of children born to unmarried non-resident parents, will experience the entrance or exit of a biological or social father during childhood (Bzostek, McLanahan, & Carlson, 2012). The increasing likelihood that children will experience one or more parental relationship transitions has spurred work investigating the association between family instability, parenting quality, and child wellbeing.

Two existing sociological literatures focus on (1) the ways in which divorce is linked to negative changes in parenting and child wellbeing, such as increased child behavior problems, early delinquency, and harsh parenting (Amato, 2005; Beck, Cooper, McLanahan, & Brooks-Gunn, 2010; McLanahan, Tach, & Schneider, 2013); and (2) the role of social (i.e. non-biological) father entrances in families. This latter literature has largely found that social fathers'

presence does not provide overall benefits for children (Heatherington et al., 1992; Magnuson & Berger, 2009).

A third literature contends that the type of transition (divorce to single, or single to marriage to a social father, for example) is less important for child wellbeing than the *number* of transitions a child experiences. Fomby and Cherlin (2007) outlined two hypotheses about the ways in which children may be affected by parental relationship transitions which captures the literature well. Their *instability hypothesis* contends that children are equally, or more, affected by the number of parental relationship transitions they experience than by the type of transition. The *selection hypothesis* proposes that the negative effects of relationship transitions may simply be a byproduct of the same antecedents that make some mothers more likely to experience multiple transitions. The instability hypothesis stems from theories indicating that transitions of any kind result in disruptions of the family system.

Few studies have examined paternal parenting as a result of relationship transitions (Mitchell et al., 2015). In addition, whether the number of relationship transitions or the type of relationship transition is most salient remains an open question in the literature. However, given prior research, it seems possible that the answer may at least partially depend on the outcome measured.

Child maltreatment and marital status

In contrast to the broader sociological literature about the association between relationship transitions and parent and child wellbeing, the child maltreatment literature has focused almost exclusively on the role of marital status, both in research and in policy and practice. A number of studies have shown that children in single-parent families are more likely to experience child maltreatment. Sedlak and Broadhurst (1996), using data from the Third

National Incidence Study, reported that children living in single-parent families were 77% more likely to experience physical abuse and 87% more likely to experience physical neglect than children in two-parent families. In particular, low-income children living with a single mother are more likely to experience child abuse and neglect than children living with both biological parents (Dubowitz, 1987; Gelles, 1981; Gil, 1971; Paxson & Waldfogel, 1998, 2002, 2003; Waldfogel, 2000), and children living with a single parent, or in neighborhoods with high proportions of single parents, have been found to be at increased risk of being reported to CPS (Berger, Paxson, & Waldfogel, 2009; Coulton, Korbin, Su, & Chow, 1995).

Given prior evidence that child abuse and neglect are associated with single parenthood, one would expect that transitions to marriage or cohabitation with a child's biological father would be associated with decreased risk of child abuse as mothers gain resources and help in parenting, and stress is reduced. Transitions to marriage or cohabitation with a social father might be associated with increased risk of child abuse, as the addition of a new parent to the family system increases stress. Transitions to being single may be associated with increased risk of abuse as economic and parenting resources are diminished. However, few studies that I am aware of have investigated the association between relationship transitions, in contrast with marital status, and the risk for child maltreatment.

In a recent study examining the role of relationship transitions and harsh parenting, Beck and colleagues (Beck, Cooper, McLanahan, & Brooks-Gunn, 2010) found that co-residential and dating transitions are both associated with increased maternal stress and harsh parenting. However, this work remains among the only studies to investigate the role of relationship transitions in the risk for child abuse.

Theories and empirical evidence from the two literatures – relationship transitions and child maltreatment – are consistent in some ways and conflict in others. First, the relationship transitions literature would indicate that the exit of a biological father from the household would be associated with decreased child wellbeing (unless the parental relationship quality was particularly poor) while the entrance of a father would be associated with increases in child wellbeing (Osborne, Berger, & Magnuson, 2012). However, little research has distinguished between entrances and exits of biological versus social fathers.

In contrast, the child maltreatment literature indicates that marriage with biological fathers generally reduces the risk for maternal child maltreatment (with little distinction between marriage and cohabitation), while the presence of social fathers vastly increases the overall risk for child maltreatment (Berger, 2004; Martin & Walters, 1982). Consistent across the two literatures is that single motherhood increases the likelihood of poor child outcomes and child maltreatment alike.

Prior research about the determinants of child abuse and neglect suggests that relationship transitions may influence the risk for each differently. Transitions to marriage or cohabitation may decrease the risk for child neglect as the presence of fathers may increase material resources and supervision of children. However, the presence of social fathers may increase the risk for neglect as mothers shift their attention away from the child and toward the new partner, or as a result of social fathers withholding investments in non-biologically related children (Coohey & Zhang, 2006; Radhakrishna, Bou-Saada, Hunter, Catellier, & Kotch, 2001). To that end I propose three related hypotheses.

HYPOTHESIS 1a - *Mothers' relationship transitions to marriage or cohabitation with the child's biological father will decrease the risk for child abuse and neglect.*

HYPOTHESIS 1b - *Mothers' relationship transitions to marriage or cohabitation with a social father will increase the risk for child abuse and neglect.*

HYPOTHESIS 1e - *Mothers' relationship transitions to being single will increase the risk for child abuse and neglect.*

The role of possible maternal mediators: depression, parenting stress, social support, income, material hardship, and unemployment

A large subfield within child maltreatment research has sought to understand the causal effect of poverty and material hardship on maltreatment. A robust literature has demonstrated that low income is highly associated with the risk for child maltreatment (Steinberg, et al., 1981). Prior empirical work indicates that maternal unemployment may be associated with a decrease in the risk for child maltreatment, as mothers are able to spend more time on childcare (Paxson & Waldfogel, 2003). In contrast, paternal unemployment has been shown to increase the risk for paternal child maltreatment (Lindo & Schaller, & Hansen, 2013).

A range of studies have found that parental depression is often closely linked to hostile and rejecting interactions with children (Belsky, 1984) which may affect secure parent-child attachment (Crittenden & Ainsworth, 1989) and hinder parental perspective taking ability (Feshbach, 1989), increasing the likelihood of both abuse and neglect (Carlson, Cicchetti, Barnett, & Brainwald, 1989). Parenting stress, or self-efficacy, has been similarly linked to the risk for child maltreatment (Slack, Holl, McDaniel, Yoo, & Bolger, 2004). Stress may increase the likelihood of child maltreatment through parents' feelings of ineffectual parenting (Brayden, Altemeier, Tucker, Dietrich, & Vietze, 1992), through difficulty in controlling emotions resulting in harsher and more punitive punishment (Azar, 2002), as a result of unemployment or economic hardship (Conger, Ge, Elder, Lorenz, & Simons, 1994; McLoyd, 1990), or as a result of low locus of control in parenting (Hilton & Desrochers, 2000).

Social isolation has been defined in a variety of ways. Theory and empirical research have found that families who are disconnected from peers, social organizations, social and economic supports, or who move frequently are more likely to maltreat than families that are highly integrated within a community (Coohey, 1996). Explanations for the importance of social isolation have relied on ideas of social capital (Coleman, 1988) and collective efficacy (Sampson, Raudenbush, & Earls, 1997) in describing the ways in which families draw on networks of support (Garbarino & Sherman, 1980). Lack of social support may contribute to child maltreatment through parents' inability to access material and perceived support from family and peers (Gaudin, Polansky, Norman, Kilpatrick, Allie, & Shilton, 1993).

In sum, the literature suggests that a number of individual economic and psychological factors contribute to the risk for child maltreatment. Prior research often suggests these mechanisms may be particularly powerful in the association between single parenthood and the risk for child maltreatment (Paxson & Waldfogel, 2003). However, no empirical work to date that I am aware of has investigated the role of these primary mechanisms in the association between relationship transitions and the risk for child maltreatment.

If the association between relationship transitions and the risk for child maltreatment is explained by changes in economic resources, mental health, or social isolation then it may be that transitions themselves are less important in the risk for maltreatment than the accompanying changes in economic wellbeing and mental health. It may also be the case that parents who are more susceptible to relationship transitions are also more likely to be low-income or have mental health problems; this is related to the selection hypothesis described by Fomby and Cherlin (2007). In contrast, if the association between different types of relationship transitions and the risk for child maltreatment is robust to the inclusion of individual economic and psychological

factors, it would provide further evidence that the nature of a relationship transition itself represents an important risk for maltreatment, above and beyond associated changes in contextual factors.

It is important to note that the above indicators might be expected to have different directional influences depending on the type of relationship transition experienced. Mothers' transitions to marriage or cohabitation with the child's biological father might be associated with increased household income, and decreased material hardship and depression, resulting in a decrease in the risk for child maltreatment. In contrast, it may be that the potential mediators function differently when mothers' transition to co-residential relationships with a social father. The presence of a social father in the household might lead to increased household income, and decreased material hardship, but may also be associated with increased parenting stress and potentially depression, resulting in an increase in the likelihood of child maltreatment. In addition, cohabiting with, rather than being married to, a social father may have implications for the sharing of economic resources. Last, mothers' transitions to being single might be associated with increases in depression, parenting stress, social isolation, and economic hardship, resulting in an increase in the risk for child maltreatment.

HYPOTHESIS 2 - *The association between relationship transitions and the risk for child maltreatment may be partly mediated by changes in economic and psychological wellbeing.*

Biological fathers

The role of fathers' in the risk for child maltreatment, and relationship transitions in general, has received scant attention in the literature to date. A longstanding body of research stemming from social-biological theory has found that the presence of stepfathers and non-biologically related men in the household increases the risk for child abuse, potentially as a result

of their decreased biological imperative to care for children who are not biologically related to them (Daly, 1980; Daly & Wilson, 1996; Lightcap, Kurland, & Burgess, 1982; Radhakrishna, Bou-Saada, Hunter, Catellier, & Kotch, 2001), or as a result of the incomplete institutionalization of the role of social (non-biologically related) fathers in the family (Cherlin, 1992; Margolin, 1992).

The vast majority of prior research investigating the role of fathers in the risk for child maltreatment has focused on the ways in which fathers' presence, co-parenting, or economic support influences the risk for *maternal* child abuse and neglect (Coohey & Zhang, 2006; Guterman, Lee, Lee, Waldfogel, & Rathouz, 2009). However, a limited body of work indicates that fathers are overrepresented as perpetrators of child maltreatment as compared with mothers, given the amount of time each spends in childcare (Lee, Bellamy, & Guterman, 2009).

Although the research on fathers' role in the risk for child maltreatment is limited and somewhat mixed, it is clear that fathers' probability of maltreatment is correlated with access to the child. Fathers who co-reside with their child's biological mother (the most likely primary caregiver) are likely to spend more time with the child. Related research on father involvement in parenting indicates that fathers who are not co-residential are likely to form new partnerships and decrease their involvement with existing children (Edin & Nelson, 2013). To that end, I offer three related hypotheses about how fathers' relationship transitions might affect the risk of abuse of their biological children.

HYPOTHESIS 3a - *Fathers' relationship transitions to marriage or cohabitation with the child's biological mother will increase the risk for paternal child abuse.*

HYPOTHESIS 3b - *Fathers' relationship transitions to marriage or cohabitation with a social mother will decrease the risk for paternal child abuse.*

HYPOTHESIS 3c - *Fathers' relationship transitions to being single will decrease the risk for child abuse.*

The role of possible paternal mediators: depression, parenting stress, social support, income, material hardship, and unemployment

Although the extant literature has identified a number of possible maternal characteristics that are likely to mediate the association between relationship transitions and the risk for child maltreatment by mothers, little research has focused on fathers or has identified characteristics that are unique to fathers that might be thought of as potential mediators (Guterman & Lee, 2005). Therefore, I draw on the same set of mediators outlined above in analyses of fathers' risk for child abuse.

Fathers' transitions to co-residence with the child's biological mother might be associated with increased household income and decreased material hardship, parenting stress, depression, and social isolation, which might result in a decrease in the risk for paternal child abuse. In contrast, fathers' transitions to being single might be expected to have the opposite effect, and it is perhaps unclear how fathers' transitions to a relationship with a new partner might be affected.

HYPOTHESIS 4 - *The association between relationship transitions and the risk for paternal child abuse may be mediated by changes in economic and psychological wellbeing.*

The role of child age

In addition to the indicators outlined above, there is evidence from the prior literature that the risk for maltreatment is highest before about age 5 and decreasing thereafter (MacKenzie, Nicklas, Brooks-Gunn, & Waldfogel, 2014). Prior work has also found that children's age at the time of parental relationship transitions may be important for child wellbeing (Amato & Keith, 1991). It may be, for example, that younger children are more adversely affected by parental relationship dissolution, resulting in increased behavior problems and thus increasing the risk for

child maltreatment (Cherlin, Chase-Lansdale, & McRae, 1998). This research suggests the following hypothesis:

HYPOTHESIS 5: *The association between relationship transitions and the risk for child maltreatment may be moderated by child age.*

DATA

This study draws on data from the Fragile Families and Child Wellbeing Study (FFCWS), a rich longitudinal birth cohort study made up of nearly 5,000 families in 20 large U.S cities in 15 states between 1998 and 2001. FFCWS oversampled non-marital births, and as a result socio-economically disadvantaged families. When weighted it is representative of families in large U.S. cities (Reichman, Teitler, Garfinkel, & McLanahan, 2001). Follow-up surveys were conducted when the focal child was approximately, 1, 3, 5, and 9 years old.

Measures of relationship status

At each wave of the study, mothers and fathers were asked about their current relationship status with the child's other biological parent. In addition, beginning when children were 1-years old parents also reported about whether they were married to or cohabiting with a social parent (father or mother).

Measures of the risk for child maltreatment

Parents in the Fragile Families Study tend to use high levels of harsh parenting. Spanking and harsh parenting practices are often thought to be indicators of the risk for abuse when they occur frequently. For this reason I focus on changes in the prevalence of high frequency harsh parenting.

Risk of abuse. Beginning when children were approximately 1-years old, both mothers and fathers were asked how often in the past month they had spanked their child (every or nearly

every day, a few times a week, a few times a month, never) (mothers also reported how frequently fathers spanked). I recode spanking to create two dichotomous indicators: (1) ever spanked, and (2) high frequency spanking (a few times a week or more). Fathers were only asked about spanking if they had seen their child in the 30 days prior to the interview. I assign fathers who had not seen their child a zero for both indicators of spanking. Although generally not considered child abuse itself, high frequency corporal punishment is associated with the risk for child abuse (Gershoff, 2002).

Beginning when the focal child was 3 years old, mothers were also asked about their own physically and psychologically aggressive parenting behaviors drawn from the Conflict Tactics Scale for Parent and Child (CTPSC) (Strauss, Finkelhor, Moore, & Runyan, 1998). This scale is frequently used as an indicator of the risk for child abuse. Physically aggressive parenting behaviors include: (1) hit child on the bottom with something like a belt, hairbrush, stick, or other hard object; (2) shook child; (3) spanked child on the bottom with your bare hand; (4) slapped child on the hand, arm, or leg; or (5) pinched child. Psychologically aggressive parenting include: (1) shouted, yelled, or screamed at child; (2) swore or cursed at child; (3) said you would send child away/kick out of the house; (4) threatened to spank or hit child but did not do it; or (5) called child dumb, lazy, or similar name. I recode these scales so that high frequency physically and psychologically aggressive behavior is defined as aggressive behavior that occurred 11 or more times in the past year. Because mothers were only asked to report on fathers' aggressive parenting when fathers were co-resident, I am unable to draw on these questions in the analyses.

Risk of physical neglect. I follow Font and Berger (2015) in constructing a measure of neglect. Child neglect consists of many possible components. Physical neglect is most often

defined as a caregiver's act of omission that results in the failure to provide for the basic needs of a child; including nutrition, safe housing, medical care, or – sometimes - education. Drawing on questions asked of mothers at each wave (beginning at age 3) I construct a measure of physical neglect based on several distinct indicators, including: whether the child did not receive sufficient food, whether the child did not receive needed medical care, whether the family was homeless or doubled-up, if the household had utilities shut off or was physically unsafe according to an in-home observer, or if the child appeared to have poor physical hygiene according to an in-home observer. Because many of the indicators were zero-skewed, I dichotomize all scales by creating a cutoff point at the 90th percentile. I then sum the items and create an indicator of any evidence of physical neglect (Berger, Font, Slack, & Waldfogel, 2013).

Risk of supervisory/exposure neglect. I also follow Font & Berger (2015) in constructing a measure of supervisory/exposure neglect (beginning at age 3). Supervisory and exposure neglect is potentially more difficult to discern because the signs are less obvious than those of physical neglect or child abuse. Determination of risk for supervisory/exposure neglect was based on four questions: if the child was left alone without an adult, if the child was exposed to parental substance abuse or domestic violence, or if the child was exposed to criminal activity. I again dichotomize all scales by creating a cutoff point at the 90th percentile. I then sum the items and create an indicator of any evidence of supervisory/exposure neglect (Berger, Font, Slack, & Waldfogel, 2013).

Child Protective Services involvement. In addition to the above indicators of the risk for child maltreatment, mothers were also asked at the 5 and 9 year follow-up surveys if they had ever been contacted by Child Protective Services. Using this information I construct wave specific, cumulative, indicators of CPS involvement. This information is unfortunately likely

quite limited. First, mothers likely underreported their own involvement with CPS. Second, CPS could have contacted mothers for a range of reasons. For example, although mothers might have been involved with CPS because of their own actions, many states also categorize the failure of a mother to protect her child from abuse or neglect by others as an act of maltreatment as well.

Time-varying covariates

In all models I include measures of parent and child age at the time of the survey.

Time-varying mediators

I also seek to determine whether individual time-varying characteristics of parents mediate the main associations. The Fragile Families Study contains a rich set of possible mediators measured at ages 1, 3, 5, and 9.

Material hardship. An indicator of material hardship is based on parents' self report of whether they could not pay their rent or mortgage, were evicted due to nonpayment, could not pay the full amount of their utilities bill, needed medical attention but could not afford it, had telephone service or gas or heating oil cut off because they could not afford it, or received free food or meals.

Unemployment. At each wave mothers and fathers were asked whether they had worked a regular job for pay in the last week. Drawing on this information, I create a dichotomous indicator of current unemployment status.

Next, I include two measures of mothers' and fathers' mental health, depression and parenting stress. These indicators are also thought to be important mechanisms for both the risk for child maltreatment and relationship transitions.

Depression. I draw on 15 questions designed to assess Major Depressive Episodes (MDE) derived from the Composite International Diagnostic Interview – Short Form (CIDI-SF)

(Kessler et al., 1998). Parents were asked about their feelings of dysphoria or anhedonia in the past year that lasted for two weeks or more and if these symptoms occurred everyday and for how long. Parents were coded for depression if they reported two weeks of symptoms that lasted half of the day, almost every day.

Parenting stress. Parents were asked how strongly they agreed with four questions about feelings of being overwhelmed or discouraged by parenting responsibilities scored on a four point likert scale (strongly disagree to strongly agree).

Social support. I also test the role of maternal and paternal self-reported social support as measured by a series of questions about whether parents can rely on family or friends to loan them money, help with childcare, or provide a place to live.

Drug and alcohol use could also be thought of as possible mediators, however because drug and alcohol use are distinct parts of child neglect, I do not include them here as mediators. I have included them in alternative specifications and results are robust.

ANALYTIC STRATEGY

I model the association between mothers' and fathers' relationship transitions and the risk for child abuse and neglect estimated with odds ratios from logistic regressions. The data are restructured as person-wave files, with approximately 15,122 possible observations (for spanking, which draws on 4 waves of data). Rates of missingness were quite low. All variables had 6% or less missing information. I use multiple imputation to impute missing information on covariates, however, I do not use imputed data for the dependent variables[1]. Replication using list-wise deletion produces very similar results.

[1] Multiple imputation was conducted using STATA 13's ICE software. Five datasets were imputed drawing on information from the outcomes, predictors, and mediators, as well as a range of related characteristics including child and parent age, race/ethnicity, parental education level, whether the focal child is the first birth, low birth weight, parental drug/alcohol use, child gender, and city.

To understand the association between relationship transitions and the risk for child abuse and neglect I estimate a series of individual fixed effects models. Individual fixed effects are particularly useful in this context for a number of reasons. First, fixed effects remove time-invariant differences in families. Although it remains possible that some unmeasured factor that varies over time may influence selection into a relationship transition, the fixed effects model limits the potential bias by controlling for time-invariant or fixed factors and may help to rule out what Fomby and Cherlin (2007) described as the *selection hypothesis* in relationship transitions. Second, the fixed effects model is useful in so far as it relates within parent change in relationships (becoming married, cohabitating, or single) to changes in parenting behaviors that are a risk for child maltreatment. This specification relies only on within-parent variation to estimate the association between relationship transitions and the risk for child maltreatment (as a result, N's in tables reflect cases where both the independent and dependent variable changed).

I begin by estimating separate models of the association between mothers' and fathers' relationship transitions (married or cohabiting with the child's other biological parent, and married or cohabiting with a social father/mother, with single as the reference category) and mothers' and fathers' spanking, controlling for parent and child age at each wave. Although I test both fathers' self reported spanking and mothers' report of fathers' spanking (with similar results), I present fathers' self reports since it seems plausible that mothers may not know the full extent of non-resident fathers' parenting. In addition, although mothers provide some information about harsh parenting by social fathers, this information is quite limited and I do not consider it here.

In consecutive models I replace spanking with mothers' and fathers' high frequency spanking, and then mothers' physical and psychological aggression. Last, I re-estimate the above

models for the association between maternal relationship transitions and physical and supervisory/exposure neglect. I do not estimate models for paternal neglect since the neglect measures rely heavily on information about the custodial parent and the child's physical environment and fathers are rarely the custodial parent. In addition, I estimate a second model estimating the association between transitions to being single and each of the outcomes, with all other relationship statuses as the reference group. Because mothers and fathers transition to being single from all other relationship statuses, it is informative to understand the association between transitions to being single and the risk for maltreatment in a separate model.

Next, I test the role of six possible parenting mediators: depression, parenting stress, social isolation, household income, material hardship, and unemployment. If the addition of these mental health and economic indicators reduces the association between relationship transitions and the risk for child maltreatment, it may indicate that changes in relationship status work through these various pathways, rather than having a direct effect on the risk for maltreatment.

Last, in an effort to better understand the possible moderating role of child age, I interact relationship status and child age. The fixed effects models assume that the effect of a relationship transition is the same for children no matter the age at which it occurs. Interacting age and relationship status provides a check on this assumption.

Some of the prior literature indicates that the number of transitions rather than type of transition that a child experiences may be more important for wellbeing. As a robustness check I test an alternative measure of relationship transitions that focuses on the number of relationships that parents report having been involved in between the 3 to 5 year and 5 to 9 year follow-up surveys. Although the Fragile Families Study offers an extensive set of measures of parental

relationships, the early waves do not adequately measure relationships that occur interstitially. However, at the age 5 and 9 follow-up surveys mothers were asked to report how many relationships and cohabitations lasting longer than one month had occurred since the last wave. I combine this information with parental reports about their current relationship status to test the number of transitions hypothesis. I do so by pooling this information across the waves and conducting similar individual fixed effects models as described above.

RESULTS

Descriptive results

Table 1 shows the frequency with which mothers and fathers report using harsh parenting practices with their children, which may indicate a risk for child abuse. Both maternal and paternal spanking begins quite early, 26% of mothers and 18% of fathers report spanking their 1-year old child, but declines after age 3. Notably, fathers are more likely than mothers to report using high frequency spanking when children were 3 and 5 years old. In contrast, a larger percent of mothers as compared to fathers reported using high frequency physically and psychologically aggressive parenting at all ages. A much larger percent of mothers reported physical neglect of their child than supervisory/exposure neglect. In addition, the percent of mothers and fathers reporting depression was fairly consistent across the waves (approximately 18% for mothers and approximately 13% for fathers) and mothers were younger, had lower incomes, and more material hardships than fathers, and were more likely to be unemployed. Last, the share of mothers who were married or cohabiting with the child's biological father is largely consistent across waves, while the percent of mothers who were married or cohabiting with a social father increased as children aged.

Mothers' relationship transitions and the risk for child abuse: Transitions with biological fathers

The first part of hypothesis 1a is that mothers' relationship transitions to marriage or cohabitation with the child's biological father will decrease the risk for child abuse by mothers. I test this hypothesis by conducting a series of logistic regression models using individual fixed-effects and a variety of possible indicators of the risk for child abuse.

Table 2 relates changes in marital status, in reference to being single, and the risk for child maltreatment. The table demonstrates that transitions to cohabitation with the biological father are associated with a 17% decrease in the odds of spanking (OR = 0.83) (model 1). Transitions to cohabitation with a social father are associated with 31% increase in the odds of spanking (OR = 1.31). High frequency spanking may be more related to the risk for child abuse than spanking overall. The results indicate that only transitions to cohabitation with a biological father are significantly associated with a decrease in the likelihood of high frequency spanking (40% decrease in the odds; OR = 0.60).

Next, I test two other possible indicators of the risk for child abuse by mothers, high frequency physically and psychologically aggressive parenting. Table 2 demonstrates transitions to cohabitation with the biological father are associated with a 42% decrease in the odds of high frequency physical aggression by mothers (OR = 0.58). Similarly, the table shows that transitions to cohabitation with the biological father are associated with a 37% decrease in the odds of high frequency psychological aggression by mothers (OR = 0.63).

Mothers' relationship transitions and the risk for child abuse: Transitions with social fathers

Turning to the first part of hypothesis 1b, I next investigate whether relationship transitions to marriage or cohabitation with a social father increases the risk for child abuse by mothers. I find no association between transitions to marriage with a social father and the risk for child abuse by mothers. Although Table 2 indicates that transitions to cohabitation with a social

father are associated with a 31% increase in the likelihood of spanking by mothers (OR = 1.31), I find no association between cohabiting with a social father and high frequency spanking, psychological aggression, or physical aggression.

Mothers' relationship transitions and the risk for child neglect: Transitions with biological fathers

Hypothesis 1a also asks whether transitions to marriage or cohabitation with the child's biological father will be associated with a decrease in the risk for child neglect by mothers. Table 2 shows results indicating that transitions to marriage with a biological father are associated with a 34% decrease in the odds of physical neglect and a 48% decrease in the odds of supervisory/exposure neglect by mothers (OR = 0.66 & 0.52, respectively). I find similar results for transitions to cohabitation, in particular, a 28% decrease in the likelihood of physical neglect and a 33% decrease in the odds of supervisory/exposure neglect (OR = 0.72 & 0.67, respectively).

Mothers' relationship transitions and the risk for child neglect: Transitions with social fathers

Hypothesis 1b also asks whether transitions to marriage or cohabitation with a social father will increase the risk for child neglect. In contrast to this hypothesis, the results indicate that transitions to marriage with a social father are associated with a 52% decrease in the odds of physical neglect and a 55% decrease in the odds of supervisory/exposure neglect, but no significant association between cohabitation with a social father and physical neglect, but a 21% decrease in the odds of supervisory/exposure neglect (OR = 0.48, 0.45, & 0.79, respectively). These results point to a strong protective effect of both biological and social fathers in reducing the risk for neglect.

Mothers' relationship transitions and the risk for child maltreatment: Transitions to being single

In Table 3, I examine whether transitions to being single are associated with increased risk for child abuse and neglect (hypothesis 1c). In these models the reference group is all other relationship categories since parents transition from all marital statuses to being single. Although transitions to being single are not associated with increased risk for maternal spanking overall, they are associated with a 43% increase in the odds of high frequency spanking (OR = 1.43). But, transitions to being single are not associated with high frequency physical aggression by mothers and are only marginally associated with high frequency psychological aggression by mothers.

Turning to child neglect, hypothesis 1c also proposes that transitions to being single will be associated with increased risk for child neglect by mothers. In contrast to child abuse, I find strong evidence in support of this hypothesis, with transitions to being single associated with a 36% increase in the odds of physical neglect and 60% increase in the odds of supervisory/exposure neglect (OR = 1.36 & 1.60, respectively).

Finally, although it is self-reported and thus likely to be an imperfect measure, I draw on mothers' report of their own involvement with Child Protective Services (CPS). If results for involvement with CPS are similar to the results for the above parenting behaviors they may serve as a kind of robustness check that the measured parenting behaviors are indeed indicators of the risk for abuse or neglect. Overall, Table 2 provides strong evidence that transitions to being single are associated with increased risk of CPS involvement (OR = 1.95). The majority of CPS reports are likely to be related to child neglect. Results from Table 3 indicate that transitions to being single are associated with increased risk for child neglect; findings for CPS are therefore consistent with this result.

The role of possible mediators: Mothers

In model 2 of Tables 2 and 3 I test hypothesis 2 by including controls for the potential mediators (mothers' mental health, resources, or economic wellbeing). Although depression, parenting stress, material hardship, and unemployment are frequently statistically significant, in no case does their inclusion in the model significantly mediate the association between relationship transitions and the indicators of the risk for child abuse or neglect.

Fathers' relationship transitions and the risk for child abuse: Transitions with biological mothers

In addition to the associations between relationship transitions and *mothers'* parenting behaviors, I also estimate associations between relationship transitions and *fathers'* parenting behaviors. In hypothesis 3a I propose that fathers' relationship transitions to marriage or cohabitation with the child's biological mother – likely an indicator for greater paternal contact - will increase the risk for child abuse as fathers gain greater access to the child. Table 4 draws on fathers' self-reported spanking (in results not shown I use on mothers' reports of fathers and find nearly identical results). Fathers' transitions to marriage are associated with an approximately 2.2 times increase in the odds of paternal spanking compared to single fathers, and transitions to cohabitation are associated with 79% increase in the odds of spanking (OR = 2.17 & 1.79, respectively). Similarly, fathers' transitions to marriage are associated with a 2.5 times increase in the odds of high frequency spanking and transitions to cohabitation are associated with a 3 times increase in the likelihood of high frequency paternal spanking (OR = 2.50 & 3.03, respectively).

Fathers' relationship transitions and the risk for child abuse: Transitions with social mothers

Next, I hypothesize (3b) that fathers' relationship transitions to marriage or cohabitation with a social mother will decrease the risk for child abuse of the father's biological child, as

fathers become enmeshed in new relationships and families. However, I do not find any significant association between fathers' relationship transition to marriage or cohabitation with a social mother and spanking or high frequency spanking.

Fathers' relationship transitions and the risk for child abuse: Transitions to being single

Hypothesis 3c contends that fathers' transitions to being single will decrease the risk for child abuse as fathers spend less time with and have less access to their child. Table 5 demonstrates support for this hypothesis, indicating that, relative to all other marital statuses, transitions to being single are associated with a 47% decrease in the odds of paternal spanking. Similarly, transitions to being single are associated with approximately a 66% decrease in the likelihood of high frequency spanking by fathers (OR = 0.53 & 0.34, respectively).

The role of possible mediators: Fathers

I test hypothesis 4 by re-estimating model 1 in each of the prior tables adding measures of paternal mental health, resources, and economic wellbeing. Although parenting stress, depression, material hardship, and unemployment are frequently statistically significant, the addition of these measures in no case mediates the association between relationship transition and the indicators of the risk for paternal child abuse.

The role of possible moderators: child age

I do not find evidence of significant interactions between child age and the risk for child abuse and neglect. Although the risk for maltreatment declines as children age, the risk associated with parental relationship transitions does not appear to vary depending on the age of the child.

Robustness check: number of transitions

In appendices Ia and Ib I estimate the association between the number of relationships and cohabitations that mothers and fathers reported between the age 3 and age 5 and age 5 and age 9 follow-up surveys and each of the indicators of the risk for abuse and neglect. Appendix Ia shows results from individual fixed effects models testing the association between number of cohabitations and appendix Ib shows similar results for the number of relationships between ages 3 and 9. The results indicate that more cohabitations are associated with increased odds of supervisory/exposure neglect, but no other associations were significant.

DISCUSSION

This paper presents evidence that relationship transitions have important implications for the risk for child maltreatment. In particular, the findings challenge prior research in the child maltreatment literature about the risks associated with different aspects of marital status.

Relationship transitions and the risk for maternal child abuse

First, the existing literature has largely not distinguished between married and cohabiting families in investigating the risk for child maltreatment. In fact, prior research places great emphasis on the protective qualities associated with marriage and co-residence (Berger, 2004; Dubowitz, Hampton, Bithoney, & Newberger, 1987). However, I find that while transitions to cohabitation decrease the risk for abuse by mothers (spanking and harsh parenting), transitions to marriage do not significantly affect the risk. One possible explanation may be that those who transition to cohabitation are moving from instability to greater stability while those transitioning to marriage may be simply formalizing a relationship that already existed. This finding warrants further investigation.

Second, in keeping with the extant literature, I find that transitions to being single greatly increase the likelihood of maternal spanking and CPS involvement. However, I do not find

evidence that transitions to being single significantly increase the risk for high frequency physical or psychological aggression by mothers. A primary explanation for why being single may be associated with increased risk for child abuse has been that being single is often associated with economic hardship and a host of life stressors which in turn decrease parents' ability for warm and responsive caregiving (MacKenzie, et al., 2014), however, my findings are not mediated by similar indicators. Third, I find some partial support for the theory that the presence of unrelated men in the household may increase mothers' risk for child abuse. However, this finding is limited to increases in spanking among mothers who transition to cohabiting with a social father.

Importantly, neither my findings for transitions toward co-residence nor transitions toward being single are mediated by indicators of maternal mental health, resources, or economic wellbeing. Although there may be a number of unmeasured possible mediators, these results imply that the nature of the transition itself may play an important role in increasing or decreasing the risk for abuse.

Relationship transitions and the risk for maternal child neglect

Although child neglect is much more common than child abuse (Dubowitz, et al., 2009) it has received much less attention in the existing research. As a result, much less is known about the determinants of child neglect beyond economic explanations. However, some prior findings indicate that single mothers may be more likely to neglect their children, perhaps as a result of reduced resources. A secondary literature contends that in households with unrelated men (social fathers) mothers may be more likely to neglect their children as they shift their attention away from the child and towards the new partner, or because social fathers have less incentive to devout resources to a non-biological child (Daly & Wilson, 1980).

I find evidence that marriage to the child's biological father does in fact reduce the risk for both physical and supervisory/exposure neglect (odds ratios for cohabitation are similarly signed but non-significant). Similarly, my results indicate that transitions to being single greatly increase the risk for neglect. The majority of CPS reports are likely to be related to child neglect; findings for CPS are therefore consistent with this result.

Importantly, these findings do not seem to appear to be the result of the traditional economic explanation. This is perhaps an indicator that the type of relationship transition itself may play an important role in the risk for neglect. One might surmise, for instance, that transitions to marriage may decrease the risk for supervisory/exposure neglect as parents increase their co-parenting abilities and supervision of children. The reverse might also easily be true in so far as transitions to being single may result in less ability to oversee children and manage daily parenting tasks.

In marked contrast to some aspects of social-biological theory, I find compelling evidence that transitions to marriage with a social father greatly decreases the likelihood of child neglect, and that this finding is not mediated by measures of economic hardship. It may be that marriage between a mother and a social father institutionalizes the social father's role in the family to the degree that the risk for neglect is reduced and that a less formal relationship would otherwise increase the risk for neglect.

Although it does not significantly mediate the association between relationship transitions and the risk for supervisory/exposure neglect, the large and significant odds ratios for maternal depression are compelling. Depression has long been identified as being comorbid with child maltreatment. Depressed mothers are less able to empathize with their children and more likely to interpret child behaviors as defiant or problematic (Belsky, 1993). That depression is

associated with supervisory/exposure neglect but not with physical neglect may indicate that this type of neglect is less coupled to economic factors than outcomes like physical neglect.

Relationship transitions and the risk for paternal child abuse

Very little of the existing child maltreatment and relationship transition literatures have focused on paternal parenting. Prior literature has found, for example, that fathers are disproportionally responsible for child maltreatment (given how much time they spend with children), and that mothers may defer to fathers in corporal punishment (Lee, Altschul, & Gershoff, 2015). However, no prior research has investigated how fathers' risk for child abuse is associated with relationship transitions. This may be particularly important given the recent focus on multi-partnered fertility and father involvement in parenting after non-marital births (Tach, Mincy, & Edin, 2010).

Findings from this work offer a number of insights into how relationship transitions might influence fathers' risk for child abuse. I find that transitions to co-residence (marriage or cohabitation) are associated with increased odds of spanking and high frequency spanking. In contrast, transitions to being single are associated with decreased odds of spanking and high frequency spanking. These results may indicate that the more access fathers have to children, the more likely they are to engage in riskier corporal punishment.

The role of child age

Prior research in child maltreatment indicates that younger children may be more likely to experience child maltreatment than older children, and that younger children may be more adversely affected by parental relationship dissolution than older children (Cherlin, Chase-Lansdale, & McRae, 1998). I find no significant interactions between child age and relationship transitions in the risk for child maltreatment.

Robustness check: Number vs. type of transition

Recent work by McLanahan and Lee (2015) investigating the effect of relationship transitions on child behavior puts forth that the salience of number of transitions versus the type of transition may depend on the outcomes measured. Similarly, evidence from robustness checks in the present study indicate that models estimating the nature of relationship transitions may better capture influences on harsh and neglectful parenting than the number of transitions.

Researchers and practitioners have long evaluated individual risk for children maltreatment within the context of static relationship statuses. This work provides evidence that the particular nuances of relationship change - perhaps through family functioning mechanisms outlined by Cherlin (2009) or perhaps through some other unmeasured psychological or economic processes – may have important implications for the risk for child abuse and neglect.

Limitations

This study has several limitations. First, the study does not capture substantiated cases of child maltreatment. Rather it largely draws on parents' self-reported parenting behaviors as part of the Conflict Tactics Scale (CTS). Second, although the Fragile Families Study measures paternal physical and psychological aggression, it does so only for resident fathers. As a result, I am unable to use this information since this work is concerned with fathers' relationship transitions. Third, while some of the measures of neglect exist for fathers, few non-resident fathers are the child's primary-caregiver, making it difficult to measure paternal neglect. Fourth, it is possible that some of the mediators may be endogenous. Future work will explore the temporal ordering of relationship transitions, mediators, and the risk for child maltreatment.

Conclusions

My findings both question and confirm a number of longstanding theoretical and empirical findings from the child maltreatment literature. The literature has long contended that being single is associated with the risk for maternal child abuse and neglect. First, although I find support for the contention that transitions to being single are associated with increased risk of maternal neglect, I find limited support for the proposition that transitions to being single are associated with increased risk for child abuse. Second, I find that the frequency and severity of paternal harsh parenting may be closely linked with the nature of fathers' relationship transitions. My results offer quite limited support for the theory that the presence of social fathers increases mothers' risk for either child abuse or neglect (Daly & Wilson, 1980). Last, this work reinforces the call for further investigations of fathers' risk for child maltreatment and the ways in which it may differ from those of mothers'.

REFERENCES

Amato, P. R. (2005). "The impact of family formation change on the cognitive, social, and emotional well-being of the next generation." *The Future of Children,* 15(2), 75-96.

Amato, P. R., & Keith, B. (1991). "Parental divorce and the well-being of children: A meta-analysis." *Psychological Bulletin, 110*(1), 26-46.

Ards, S. D., Myers, S. L. Jr., Malkis, A., Sugrue, E. & Zhou, L. (2003). "Racial disproportionality in reported and substantiated child abuse and neglect: An examination of systematic bias." *Children and Youth Services Review,* 25(5/6), 375-392.

Azar, S. T. (2002). "Parenting and child maltreatment." In M. H. Bornstein (Ed.), *Handbook of parenting: Vol. 4. Social conditions and applied parenting* (2nd ed., pp. 361-388). Mahwah, NJ: Lawrence Erlbaum

Beck, A. N., Cooper, C. E., McLanahan, S., & Brooks-Gunn, J. (2010). "Partnership transitions and maternal parenting." *Journal of Marriage and Family,* 72(2), 219-233.

Belsky, J. (1984). "The determinants of parenting: A process model." *Child Development,* 55(1), 83-96.

Belsky, J. (1993). "Etiology of child maltreatment: A developmental-ecological analysis." *Psychological Bulletin,* 114(3), 413-434.

Berger, L. M. (2004). "Income, family structure, and child maltreatment risk." *Children and Youth Services Review,* 26, 725-748.

Berger, L. M. (2005). "Income, family characteristics, and physical violence toward children." *Child Abuse & Neglect,* 29, 107-133.

Berger, L. M., McDaniel, M., & Paxson, C. (2005). "Assessing parenting behaviors across racial groups: Implications for the child welfare system. *Social Service Review,* 79(4), 653-688.

Berger, L. M., Font, S. A., Shook, K. S., & Waldfogel, J. (2013). "Income and child maltreatment: Evidence from the EITC. *Presented at the Association for Policy Analysis and Management Annual Meeting.*

Brayden, R. M., Altemeier, W. A., Tucker, D. D., Dietrich, M. S., & Vietze, P. (1992). "Antecedents of child neglect in the first two years of life." *Clinical Laboratory Observation,* 120(3), 426-429.

Bumpass, L., & Lu, H-H. (2000). "Trends in cohabitation and implications for children's family contexts in the United States. *Population Studies,* 54(1), 29-41.

Bzostek, S. H., McLanahan, S., & Carlson, M. J. (2012). "Mother's repartnering after a nonmarital birth. *Social Forces,* 90(3), 817-841.

Carlson, V., Cicchetti, D., Barnett, D., & Braunwald, K. G. (1989). "Finding order in disorganization: lessons from research on maltreated infants' attachment to their caregivers." In Dante Cicchetti & Vicki Carlson (Eds), *Child Maltreatment: Theory and Research on the Causes and Consequences of Child Abuse and Neglect.* Cambridge University Press: Cambridge UK.

Cherlin, A. J. (2009). *Marriage-Go-Round: The State of Marriage and the Family in America Today*. First Vintage Books: NY.

Cherlin, A. J., Chase-Lansdale, P. L., McRae, C. (1998). "Effects of parental divorce on mental health throughout the life course." *American Sociological Association, 63*(2), 239-249.

Cichetti, D., & Lynch, M. (1993). "Toward an ecological/transactional model of community violence and child maltreatment: Consequences for children's development." *Psychiatry,* 56, 96-118.

Coleman, J. S. (1988). "Social capital in the creation of human capital." *American Journal of Sociology,* 94, S95-S120.

Coohey, C. (1996). "Child maltreatment: Testing the social isolation hypothesis." *Child Abuse & Neglect,* 20(3), 241-254.

Coohey, C., & Zhang, Y. (2006). "The role of men in chronic supervisory neglect." *Child Maltreatment,* 11(27), 26-33.

Conger, R. D., Ge, X., Elder, G. H. Jr., Lorenz, F. O., & Simons, R. L. (1994). "Economic stress, coercive family process, and developmental problems of adolescents." *Child Development,* 65(2), 541-561.

Coulton, C. J., Korbin, J. E., Su, M., & Chow, J. (1995). "Community level factors and child maltreatment rates." *Child Development,* 66(5), 1262-1276.

Crittenden, P., & Ainsworth, M. D. S. (1989). "Child maltreatment and attachment theory." In Dante Cicchetti & Vicki Carlson (Eds), *Child Maltreatment: Theory and Research on the Causes and Consequences of Child Abuse and Neglect.* Cambridge University Press: Cambridge UK.

Daly, M., & Wilson, M. (1980). "Discriminative parental solicitude: A biological perspective." *Journal of Marriage and Family,* 42(2), 277-288.

Daly, M., & Wilson, M. (1996). "Violence against stepchildren." *Current Directions in Psychological Science,* 5(3), 77-81.

Drake, B., & Pandey, S. (1996). "Understanding the relationship between neighborhood poverty and specific types of child maltreatment." *Child Abuse & Neglect,* 20(11), 1003-1018.

Drake, B., & Zuravin, S. (1998). "Bias in child maltreatment reporting: revisiting the myth of classlessness." *American Journal of Orthopsychiatry,* 68(2), 295-303.

Drake, B., Jolley, J. M., Lanier, P., Fluke, J., Barth, R. P., & Johnson-Reid, M. (2011). "Racial bias in child protection? A comparison of competing explanations using national data." *Pediatrics,* 127(3), 471-478.

Dubowitz, H., Hampton, R. L., Bithoney, W. G., Newberger, E. H. (1987). "Inflicted and noninflicted injuries: difference in child and familial characteristics." *American Journal of Orthopsychiatry,* 57(4), 525-536.

Dubowitz, H., Newtown, R. R., Litrownik, A. J., Lewis, T., Briggs, E. C., Thompson, R., English, D., Lee, L-C., & Feerick., M. M. (2009). "Examination of a conceptual model of child neglect." *Child Maltreatment,* 10(2), 173-189.

Duncan, G. J., Brooks-Gunn, J., & Klebanov, P. K. (1994). "Economic deprivation and early childhood development." *Child Development,* 65(2), 296-318.

Edin, K. & Nelson, T. J. (2013). *Doing the Best I Can.* University of California Press: CA.

Elder, G. H., Jr. (1974). *Children of the Great Depression: Social Changes in Life Experience.* Boulder, CO: Westview Press.

Feshbach, N. D. (1989). "The construct of empathy and the phenomenon of physical maltreatment of children." In Dante Cicchetti & Vicki Carlson (Eds), *Child Maltreatment: Theory and Research on the Causes and Consequences of Child Abuse and Neglect.* Cambridge University Press: Cambridge UK Fomby & Cherlin, 2007

Finkelhor, D. & Jones, L. (2006). "Why have child maltreatment and child victimization declined?" *Journal of Social Issues,* 62(4), 685-716.

Font, S. A. & Berger, L. M. (2015). "Child maltreatment and children's developmental trajectories in early to middle childhood." *Child Development,* 86(2), 536-556.

Garbarino, J. (1977). "The human ecology of child maltreatment: A conceptual model for research." *Journal of Marriage and Family,* 39(4), 721-735.

Garbarino, J., & Sherman, D. (1980). "High-risk neighborhoods and high-risk families: The human ecology of child maltreatment." *Child Development,* 51(1), 188-198.

Gaudin, J. M. Jr., Polansky, N. A., Kilpatrick, A. C., & Shilton, P. (1993). "Loneliness, depression, stress, and social support in neglectful families." *American Journal of Orthopsychiatry,* 63(4), 59-605.

Gelles, R. J. (1989). "Child abuse and violence in single-parent families: Parent absence and economic deprivation." *American Journal of Orthopsychiatry,* 59(4): 492-502.

Gershoff, E. T. (2002). "Corporal punishment by parents and associated child behaviors and experiences: A meta-analytic and theoretical review." *Psychological Bulletin,* 128(4), 539-579.

Gershoff, E. T., Lansford, J.E., Sexton, H. R., Davis-Kean, P., & Sameroff, A. (2012). "Longitudinal links between spanking and children's externalizing behaviors in a national sample of White, Black, Hispanic, and asian american families." *Child Development,* 83(3), 838-43.

Gil, D. G. (1971). "Violence against children." *Journal of Marriage and Family,* 33(4), 637-648.

Giles-Sims, J., Straus, M. A., & Sugarman, D. B. (1995). "Child, maternal, and family characteristics associated with spanking." *Family Relations,* 44(2), 170-176.

Giles-Sims, J., & Finkelhor, D. (1984). "Child abuse in stepfamilies." *Family Relations,* 33(3), 407-413.

Guterman, N. B., & Lee, Y. (2005). "The role of fathers in risk for physical child abuse and neglect: Possible pathways and unanswered questions." *Child Maltreatment,* 10(2), 136-149.

Guterman, N. B., Lee, Y., Lee, S. J., Waldfogel, J., & Rathouz, P. J. (2009). "Fathers and maternal risk for physical child abuse." *Child Maltreatment,* 14(3), 277-290.

Heatherington, E., Mavis, W., Clingempeel, G., Anderson, E. R., Deal, J. E., Hagan, M. S., Hollier, E. A., Lidner, M. S., MacCoby, E. E., Brown, J. C., O'Connor, T. G., Eisenberg, M., Alyson, M., Rice, A. M., & Bennion, L. D. (1992). "Coping with marital transitions: A family systems perspective." *Monographs of the Society for Research in Child Development,* 57(2/3).

Hilton, J. M., & Desrochers, S. (2000). "The influence of economic strain, coping with roles, and parental control on the parenting of custodial single mothers and custodial single fathers." *Journal of Divorce & Remarriage,* 33(3/4), 55-76.

Kempe, C. H., Silverman, F. N., Steele, B. F., Droegemueller, W., & Silver, H. K. (1962). "The battered-child syndrome." *Journal of the American Medical Association,* 181(1), 17-24.

Lansford, J. E., Dodge, K. A., Malone, P. S., Bacchini, D., Zelli, A., Chaudhary, N., Manke, B., Chang, L., Oburu, P., Palmerus, K., Pastorelli, C., Bombi, A. S., Tapanya, S., Deater-Deckard, K., & Quinn, N. (2005). "Physical discipline and children's adjustment: Cultural normativeness as a moderator." *Child Development,* 76(6), 1234-1246.

Lee, D., & McLanahan, S. (2015). "Family structure transitions and child development: Instability, selection, and population heterogeneity." *American Sociological Association, online first.*

Lee, S. J., Altschul, I., & Gershoff, E. T. (2015). "Wait until your father gets home? Mother's and father's spanking and development of aggression." *Children and Youth Services Review,* 52, 158-166.

Lee, S. J., Kim, J., Taylor, C. A., & Perron, B. E. (2011). "Profiles of disciplinary behaviors among biological fathers." *Child Maltreatment,* 16(1), 51-62.

Lee, S. J., Bellamy, J. L., & Guterman, N. B. (2009). "Fathers, physical child abuse, and neglect: Advancing the knowledge base." *Child Maltreatment,* 14(3), 227-231.

Lightcap, J. L., Kurland, J. A., & Burgess, R. L. (1982). "Child abuse: A test of some predictions from evolutionary theory." *Ethology and Sociobiology,* 3,61-67.

Lindo, J., Schaller, J., & Hansen, B. (2013). "Economic conditions and child abuse." *NBER Working Paper No. 18994.*

MacKenzie, M. J., Nicklas, E., Waldfogel, J., & Brooks-Gunn, J. (2012). "Corporal punishment and child behavioral and cognitive outcomes through 5 years of age: Evidence from a contemporary urban Birth Cohort." *Infant and Child Development,* 21(1), 3-33.

MacKenzie, M. J., Nicklas, E., Waldfogel, J., & Brooks-Gunn, J. (2013). "Spanking and child development across the first decade of life." *Pediatrics,* 132(5), 1118-1125.

MacKenzie, M. J., Nicklas, E., Brooks-Gunn, J., & Waldfogel, J. (2014). "Repeated exposure to high-frequency spanking and child externalizing behavior across the first decade: A moderating role for cumulative risk. *Child Abuse & Neglect,* 38, 1895-1901.

Magnuson, K. & Berger, L. M. (2009). "Family structure states and transitions: Association with children's well-being during middle childhood." *Journal of Marriage and Family,* 71(3), 575-591.

Margolin, L. (1992). "Child abuse by mothers' boyfriends: Why the overrepresentation?" *Child Abuse & Neglect,* 16, 541-551.

Martin, M. J. & Walters, J. (1982). "Familial correlates of selected types of child abuse and neglect." *Journal of Marriage Family,* 44(2), 267-276.

McLanahan, S., Tach, L. & Schneider, D. (2013). "The causal effects of father absence." *Annual Review of Sociology,* 39, 399-427.

McLoyd, V. C. (1990). "The impact of economic hardship on Black families and children: Psychological distress, parenting, and socioemotional development." *Child Development,* 61(2), 311-346.

Mitchell, C., McLanahan, S., Notterman, D., Hobcraft, J., Brooks-Gunn, J., & Garfinkel, I. (2015). "Family structure instability, fenetic sensitivity, and child wellbeing." *American Journal of Sociology,* 120(4), 1195-1225.

Osborne, C. & McLanahan, S. (2007). "Partnership instability and child well-being." *Journal of Marriage and Family,* 69(4), 1065-1083.

Osborne, C., Berger, L. M., & Magnuson, K. (2012). "Family structure transitions and changes in maternal resources and well-being." *Demography,* 49(1), 23-47.

Radhakrishna, A., Bou-Saada, I. E., Hunter, W. M., Catellier, D. J., & Kotch, J. B. (2001). "Are father surrogates a risk factor for child maltreatment?" *Child Maltreatment,* 6(4), 281-289.

Reichman, N. E., Teitler, J. O., Garfinkel, I., McLanahan, S. S. (2001). "Fragile Families: Sample and design." *Children and Youth Services Review, 23*(4-5), 303-326.

Paxson, C., & Waldfogel, J. (1999). "Parental resources and child abuse and neglect." *The American Economic Review,* 89(2), 239-244.

Paxson, C., & Waldfogel, J. (2002). "Work, welfare, and child maltreatment." *Journal of Labor Economics,* 20(3), 435-474.

Paxson, C. & Waldfogel, J. (2003). "Welfare reforms, family resources, and child maltreatment." *Journal of Policy Analysis and Management,* 22(1), 85-113.

Pelton, L. H. (1978). "Child abuse and neglect: The myth of classlessness." *American Journal of Orthopsychiatry,* 48(4), 608-618.

Reichman, N. E., Teitler, J. O., Garfinkel, I., & McLanahan, S. (2001). Fragile Families: Sample and design." *Children and Youth Services Review*, 23(4/5), 303-326.

Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). "Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy." *Science,* 277(5328): 918-924.

Sedlak, Andrea J. & D. D. Broadhurst. (1996). "Fourth national incidence study of child abuse and neglect." U.S. Department of Health and Human Services.

Schneider, W., Brooks-Gunn, J., & Waldfogel, J. (2015). "The Great Recession and risk for child abuse and neglect." *Children & Youth Services Review,* forthcoming.

Slack, K. S., Holl, J. L., McDaniel, M., Yoo, J., & Bolger, K. (2004). "Understanding the risks of child neglect: An exploration of poverty and parenting characteristics." *Child Maltreatment,* 9(4), 395-408.

Smith, J. R., & Brooks-Gunn, J. (1997). "Correlates and consequences of harsh discipline for young children." *Archives of Pediatric Adolescent Medicine,* 151, 777-786.

Strauss, M. A. (2000). "Corporal punishment and primary prevention of physical abuse." *Child Abuse & Neglect,* 24(9), 1109-1114.

Strauss, M. A., Hamby, S. L., Finkelhor, D., Moore, D. W., & Runyan, D. (1998). "Identification of child maltreatment with the parent-child conflict tactics scales: Development and psychometric data for a national sample of American parents." *Child Abuse & Neglect,* 22(4), 249-270.

Steinberg, L. D., Catalano, R., & Dooley, D. (1981). "Economic antecedents of child abuse and neglect." *Child Development,* 52(3), 975-985.

Tach, L., Mincy, R., & Edin, K. (2010). "Parenting as a 'package deal': Relationships, fertility, and nonresident father involvement among unmarried parents." *Demography,* 47(1), 181-204.

U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2015). Child maltreatment 2013. Available from http://www.acf.hhs.gov/programs/cb/research-data-technology/statistics-research/child-maltreatment.

Waldfogel, J. (1998). *The Future of Child Protection.* Harvard University Press: MA.

Table 1. Descriptive statistics

	Age 1		Age 3		Age 5		Age 9	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Maternal risk for child maltreatment								
spanking	0.26	0.44	0.52	0.50	0.46	0.50	0.20	0.40
high frequency spanking	0.06	0.24	0.11	0.31	0.06	0.24	0.04	0.19
CPS involvement	0.01	0.11	0.02	0.13	0.04	0.18	0.04	0.20
high frequency physical aggression			0.31	0.46	0.23	0.42	0.07	0.25
high frequency psychological aggression			0.57	0.50	0.58	0.49	0.35	0.48
physical neglect			0.64	0.48	0.70	0.46	0.38	0.49
supervisory/exposure neglect			0.10	0.30	0.10	0.30	0.17	0.38
Paternal risk for child maltreatment								
spanking	0.18	0.39	0.37	0.48	0.29	0.46	0.20	0.40
high frequency spanking	0.04	0.19	0.17	0.38	0.24	0.43	0.02	0.15
high frequency physical aggression			0.16	0.37	0.12	0.32	0.05	0.21
high frequency psychological aggression			0.38	0.49	0.37	0.48	0.28	0.45
Time-varying covariates (mothers)								
age	26.43	6.06	28.21	6.06	30.31	6.05	34.44	6.01
depression	0.16	0.36	0.21	0.40	0.17	0.38	0.18	0.38
parenting stress	4.89	2.50	4.99	2.67	4.72	2.73	4.13	2.73
social support	0.25	0.43	0.26	0.44	0.24	0.43	0.24	0.43
household income ($)	32019.7	35660.3	35623.5	44041.2	37509.0	43869.4	44999.3	50115.5
material hardship	0.64	1.03	0.65	1.03	0.67	1.05	0.83	1.13
unemployed	0.47	0.50	0.44	0.50	0.41	0.49	0.35	0.48
Time-varying covariates (fathers)								
age	29.18	7.23	31.07	7.33	33.21	7.31	37.39	7.18
depression	0.10	0.31	0.14	0.35	0.12	0.32	0.14	0.35
parenting stress	3.99	2.47	4.28	2.70	4.61	2.51	4.58	2.68
social support	0.22	0.41	0.22	0.41	0.22	0.41	0.24	0.42
household income	40472.4	48588.9	46156.3	55614.3	49388.7	53957.9	56656.0	611176.3
material hardship	0.18	0.65	0.38	0.81	0.47	0.95	0.42	0.98

Time-varying relationship status								
married	0.30	0.46	0.32	0.47	0.31	0.46	0.29	0.46
cohabiting	0.27	0.45	0.19	0.40	0.13	0.34	0.09	0.29
single	0.38	0.50	0.39	0.50	0.4	0.50	0.40	0.49
married (social)	0.01	0.09	0.02	0.14	0.04	0.20	0.09	0.28
cohabiting (social)	0.04	0.20	0.08	0.27	0.12	0.33	0.12	0.33

Table 1. Descriptive statistics, continued		
	Age 1	
	Mean	*SD*
Time-invariant characteristics		
child gender (male)	0.52	0.50
Mothers' characteristics		
Race/ethnicity		
White	0.21	0.41
African-American	0.48	0.50
Hispanic	0.27	0.45
other	0.04	0.20
Education		
less than high school	0.35	0.48
high school or equivalent	0.30	0.46
some college	0.24	0.43
college or more	0.11	0.31
Fathers' characteristics		
Race/ethnicity		
White	0.20	0.40
African-American	0.49	0.50
Hispanic	0.27	0.45
other	0.04	0.20
Education		
less than high school	0.32	0.47
high school or equivalent	0.36	0.48
some college	0.21	0.41
college or more	0.11	0.31

Table 2. Change in Maternal Relationship Status and Mothers' Parenting: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects (model 1), and Possible Mediators (model 2)[a]

	Spanking		High Frequency Spanking		High Frequency Physical Aggression		High Frequency Psychological Aggression	
	Model 1	*Model 2*	*Model 1*	*Model 2*	*Model 1*	*Model 2*	*Model 1*	*Model 2*
Relationship status								
Married (bio father)	1.15	1.18	0.87	0.75	1.20	1.17	1.12	1.19
Cohabiting (bio father)	0.83*	0.85+	0.60***	0.61**	0.58**	0.57**	0.63**	0.66**
Single (ref.)	--	--	--	--	--	--	--	--
Married (social father)	0.87	0.92	0.78	0.72	1.20	1.16	0.77	0.89
Cohabiting (social father)	1.31**	1.30**	0.93	0.77	0.95	0.95	1.09	1.14
Time-varying covariates								
child's age	0.99	1.00	0.97*	1.03	0.97*	0.97*	0.98*	0.98*
mother's age	1.01	0.99	1.32+	1.30	0.99	0.98	1.08	1.08
Time-varying mediators								
depression		1.18*		1.09		0.78+		0.89
parenting stress		1.15***		1.14***		1.05+		1.07***
social support		1.08		0.93		0.86		1.15
household income		1.00		1.00+		1.00		1.00+
material hardship		1.01		1.09+		1.19**		1.04
unemployed		0.90+		0.95		1.28*		0.92
N	8,796		2,750		2,978		3,758	

Note: missing information on covariates imputed.

[a]Model 1 includes relationship transition and child and parent age. Model 2 replicates model 1 but includes each of the listed time-varying mediators

[b]When physical neglect is the outcome, the material hardship scale omits overlapping items

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2, Continued. Change in Maternal Relationship Status and Mothers' Parenting: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects (model 1), and Possible Mediators (model 2)[a]

	Physical Neglect		Supervisory/ Exposure Neglect		CPS	
	Model 1	*Model 2*	*Model 1*	*Model 2*	*Model 1*	*Model 2*
Relationship status						
Married (bio father)	0.66**	0.68*	0.52***	0.53***	0.67	0.68
Cohabiting (bio father)	0.72*	0.75*	0.67*	0.67*	0.48+	0.48+
Single (ref.)	--	--	--	--	--	--
Married (social father)	0.48***	0.51***	0.45***	0.51***	1.02	0.99
Cohabiting (social father)	0.85	0.86	0.79+	0.82	1.42	1.42
Time-varying covariates						
child's age	0.97***	0.96***	1.00	1.00	1.02	1.02
mother's age	1.20	1.26+	1.18	1.17	0.90	0.91
Time-varying mediators						
depression		1.13		1.47***		1.30
parenting stress		1.00		1.02		1.02
social support		1.27*		1.13		1.00
household income		1.00		1.00		1.00
material hardship[b]		1.69***		1.25***		1.08
unemployed		1.00		0.74**		0.91
N	4,952		2,817		659	

Table 3. Transitions to Single and Mothers' Parenting: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects (model 1), and Possible Mediators[a] (model 2)

	Spanking		High frequency Spanking		High frequency physical aggression		High frequency psychological aggression	
	Model 1	*Model 2*	*Model 1*	*Model 2*	*Model 1*	*Model 2*	*Model 1*	*Model 2*
Relationship status								
Single	1.10	1.08	1.43**	1.42**	1.30	1.32	1.25+	1.21
(ref. all other marital statuses)								
Time-varying covariates								
child's age	0.99	1.00	0.97*	0.97*	0.97*	0.97*	0.98*	0.98*
mother's age	1.01	0.99	1.31+	1.31+	0.99	0.98	1.06	1.07
Time-varying mediators								
depression		1.19*		1.29*		0.8		0.89
parenting stress		1.15***		1.17***		1.05+		1.07***
social support		1.08		0.99		0.87		1.15
household income		1.00		1.00		1.00		1.00+
material hardship		1.01		1.05		1.19**		1.05
unemployed		0.91+		0.91		1.29*		0.92
N	8,796		2,780		3,023		4,006	

Note: missing information on covariates imputed

[a]Model 1 includes relationship transition and child and parent age. Model 2 replicates model 1 but includes each of the listed time-varying mediators

[b]When physical neglect is the outcome, the material hardship scale omits overlapping items

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 3, Continued. Transitions to Single and Mothers' Parenting: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects (model 1), and Possible Mediators[a] (model 2)

	Physical neglect		Supervisory/ exposure neglect		CPS	
	Model 1	*Model 2*	*Model 1*	*Model 2*	*Model 1*	*Model 2*
Relationship status						
Single	1.36**	1.40**	1.60***	1.58**	1.95*	1.92*
(ref. all other marital statuses)						
Time-varying covariates						
child's age	0.97***	0.97***	1.00	1.00	1.02	1.02
mother's age	1.19	1.20	1.18	1.17	0.94	0.96
Time-varying mediators						
depression		1.15		1.48***		1.32
parenting stress		1.01		1.02		1.02
social support		1.01		1.16		1.00
household income		1.00		1.00		1.00
material hardship[b]		1.65***		1.26***		1.08
unemployed		0.99		0.73**		0.90
N	5,384		2,840		667	

Table 4. Change in Paternal Relationship Status and Fathers' Parenting: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects (model 1), and Possible Mediators[a] (model 2)

	Spanking		High frequency Spanking	
	Model 1	*Model 2*	*Model 1*	*Model 2*
Relationship status				
Married (bio mother)	2.17***	2.31***	2.50**	3.03***
Cohabiting (bio mother)	1.79***	1.94***	3.03***	3.90***
Single (ref.)	--	--	--	--
Married (social mother)	1.49	1.71	0.99	0.94
Cohabiting (social mother)	1.10	1.14	0.56	0.58
Time-varying covariates				
child's age	0.99	0.99	0.97*	0.96*
mother's age	1.08	1.10	1.39	1.44+
Time-varying mediators				
depression		1.06		1.24
parenting stress		1.05**		1.05
social support		1.03		1.03
household income		1.00		1.00
material hardship		1.13**		1.26*
unemployed		0.86		1.03
N	5,116		1,159	

Note: missing information on covariates imputed

[a]Model 1 includes relationship transition and child and parent age. Model 2 replicates model 1 but includes each of the listed time-varying mediators

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 5. Transitions to Single and Fathers' Parenting: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects (model 1), and Possible Mediators[a] (model 2)

	Spanking		High frequency Spanking	
	Model 1	*Model 2*	*Model 1*	*Model 2*
Relationship status				
Single	0.53***	0.50***	0.34***	0.27***
(ref. all other marital statuses)	--	--	--	--
Time-varying covariates				
child's age	0.99	0.99	0.97*	0.96*
mother's age	1.08	1.11	1.39	1.45+
Time-varying mediators				
depression		1.06		1.22
parenting stress		1.05**		1.05
social support		1.03		1.05
household income		1.00		1.00
material hardship		1.14**		1.27*
unemployed		0.86		1.02
N	5,116		1,159	

Note: missing information on covariates imputed

[a]Model 1 includes relationship transition and child and parent age. Model 2 replicates model 1 but includes each of the listed time-varying mediators

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Appendix Ia. Number of cohabiting relationships and Parenting: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects, and Possible Mediators

	Spanking		High frequency Spanking		High frequency physical aggression	High frequency psychological aggression	Physical neglect	Supervisory/ exposure neglect	CPS
	Mothers	*Fathers*	*Mothers*	*Fathers*	*Mothers*	*Mothers*	*Mothers*	*Mothers*	*Mothers*
Marital status (between ages 3 and 9)									
Number of cohabitations (ref. no transition)	1.01	1.23	1.02	1.14	0.80	0.85	1.28	1.52*	1.42
Time-varying covariates									
child's age	0.98	0.98	1.04	0.91*	0.96	0.93**	0.96*	0.98	0.89
mother's age	0.96	1.11	0.53	1.95	0.94	1.71+	1.09	1.56	4.91
Time-varying mediators									
depression	1.16	0.89	1.27	0.89	0.95	0.71	1.02	2.19***	1.57
parenting stress	1.10*	1.02	1.21*	1.07	0.94	1.08+	0.93	1.01	1.37
social support	1.16	0.79	1.69	0.69	1.20	1.18	1.25	1.85*	3.55
household income	1.00+	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00*
material hardship[a]	1.13	1.05	1.10	1.27	1.03	1.06	2.21***	1.23*	1.64
unemployed	1.04	1.03	1.70	1.38	1.31	1.23	0.99	0.66+	0.93
N	1,106	776	248	354	552	916	1,416	708	104

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

[a]When physical neglect is the outcome, the material hardship scale omits overlapping items

Appendix Ib. Number of relationships and Parenting: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects, and Possible Mediators

	Spanking		High frequency Spanking		High frequency physical aggression	High frequency psychological aggression	Physical neglect	Supervisory/ exposure neglect	CPS
	Mothers	*Fathers*	*Mothers*	*Fathers*	*Mothers*	*Mothers*	*Mothers*	*Mothers*	*Mothers*
Marital status (between ages 3 and 9)									
Number of relationships	0.92	0.85	1.23	1.07	1.16	1.17	1.07	1.05	0.98
(ref. no transition)	--	--	--	--	--	--	--	--	--
Time-varying covariates									
child's age	0.98	0.99	1.01	0.91*	0.94*	0.96+	0.95**	0.99	0.99
mother's age	0.84	0.95	0.78	1.64	1.36	1.13	1.23	1.26	1.23
Time-varying mediators									
depression	1.11	0.83	0.64	0.80	0.70	0.87	1.26	1.68**	0.86
parenting stress	1.08*	1.02	1.16**	1.09	1.02	1.10**	0.97	1.06+	1.07
social support	1.05	0.80	1.30	0.83	1.37	1.13	0.94	1.13	0.73
household income	1.00+	1.00	1.00	1.00	1.00	1.00*	1.00	1.00	1.00
material hardship[a]	1.09	1.08	1.28*	1.08	1.08	1.06	2.06***	1.24**	1.15
unemployed	0.90	1.07	1.67+	1.88	1.41	1.08	0.75+	0.68*	0.82
N	1,628	934	402	746	904	1,490	2,286	1,172	220

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

[a]When physical neglect is the outcome, the material hardship scale omits overlapping items

Chapter 3: Non-Resident Fathers' Presence at Birth and Later Parenting Involvement

INTRODUCTION

The period surrounding the birth of a child has often been considered a "magic moment" of opportunity, wherein parents are particularly optimistic about their prospects for marriage, co-parenting, and father involvement (Gibson-Davis, 2014). The birth of a child represents a dramatic change in the lives of parents. It can be accompanied by both great joy and by stark changes in economic wellbeing, relationship quality, and self-conception. In addition, it represents an important cultural signifier of opportunity, perhaps particularly for disadvantaged non-resident fathers (Edin & Nelson, 2013).

This period of optimism may be particularly important in regards to involvement in parenting by low-income, unmarried, non-resident fathers (Bellamy, Thullen, & Hans, 2015). Indeed, a growing literature has sought to understand the determinants and predictors of non-resident father involvement in parenting, and the ways in which parenting involvement by such fathers might be encouraged (Amato & Gilbreth, 1999).

A large body of literature has sought to better understand the determinants of non-resident father involvement in parenting. At the same time, a linked literature has sought to understand whether fathers' presence at the birth of a child influences later parenting involvement. However, research investigating the effects of fathers' presence at birth has largely looked at co-resident couples and has been hampered by issues of selection bias. To that end, I use data from the Fragile Families and Child Wellbeing Study (FFCWS) (Reichman, Teitler, Garfinkel, & McLanahan, 2001) to test whether low-income, unmarried, non-resident fathers' presence at the birth of a child leads to increased father involvement in parenting during the child's first five years of life.

It may be that the presence of low-income, unmarried, non-resident fathers at the birth of a child increases parenting involvement by such fathers. For example, it is possible that non-resident fathers' presence at the birth of a child brings forth greater understanding of the salience of the newfound paternal role. Alternatively, it is possible that non-resident fathers' presence at the birth increases mothers' likelihood of allowing non-resident fathers' to be involved in parenting activities. In addition, some prior evidence indicates that participation in the birth may be distinct from participation in other aspects of prenatal care (Bellamy, Thullen, & Hans, 2015), and may even result in physiological changes (Berg & Wynne-Edwards, 2001). However, a range of selection issues limits the extant literature about the association between fathers' presence at the birth of a child and later paternal parenting involvement.

BACKGROUND

The last 50 years have witnessed dramatic changes in the structure of the American family as non-marital childbearing has increased markedly. In 2007, 40 percent of all children born in the United States were to unwed parents, doubling the 18 percent of children born to unwed parents in 1980 (Waldfogel, Craigie & Brooks-Gunn, 2010). These unmarried mothers fall into two categories, those who are cohabiting and those who do not live with a partner.

A large body of evidence demonstrates that children in non-married families are more likely to experience behavioral problems than children living in two-parent married families (McLanahan & Sandefeur, 1994). Growing up in a household with non-married parents has been shown to be associated with lower levels of school engagement, as well as behavioral and emotional problems (Brown, 2004). Similar work has found that children who spend time in cohabiting families are at risk for poor cognitive and behavioral outcomes, while children brought up in single parent homes face the greatest levels of risk (Amato, 1994; Carlson &

Corcoran 2001; Hofferth, 2006; Magnuson & Berger 2009; Wu, Cherlin & Bumpass, 1996). A growing body of research focusing on parents' partner transitions, and non-marital births with multiple partners, suggests that the instability in daily life that these transitions cause is particularly detrimental for child wellbeing (Fomby & Cherlin, 2007; Osborne & McLanahan, 2007; Tach, Mincy & Edin, 2010).

An array of consistent findings indicating detrimental effects of single parenthood for child wellbeing has resulted in both an increased focus on the determinants of non-resident father involvement in parenting, as well as on how parenting involvement by such fathers might be sustained over time. In particular, researchers have sought to better understand the pathways through which non-resident fathers' sustain involvement in the lives of their children, and whether father involvement in parenting improves child wellbeing.

Father involvement in parenting

Fatherhood and the nature of the paternal role have undergone dramatic structural transformations over the last few decades. A significant growth in non-marital births has caused a fundamental shift in the workings and makeup of the family (Cherlin, 2004; McLanahan & Sandefur, 1994). At the same time, expectations about the role of fathers have changed, moving beyond normative ideas of simply providing financially for a family to include a variety of parenting activities (Palkovitz, 1997).

As a result of these shifts in both the make-up of the family and in norms about the role of fathers, the large existing literature on paternal financial support (Furstenberg, Sherwood & Sullivan 1992; Knox 1996; McLanahan, Garfinkel & Robins, 1994) has been joined by an emergent area of research on father involvement in parenting activities. Studying low-income non-resident fathers' involvement in parenting activities is particularly important because one

would expect that low-income men, while often finding it difficult to contribute monetarily to their families, could potentially impact their children's development through parenting. Moreover, low-income unmarried fathers express a strong desire to be involved in the lives of their children (Carlson, McLanahan & Brooks-Gunn 2008; Edin & Nelson, 2013).

Prior research has identified at least four predictors of father involvement in parenting activities that are hypothesized to be particularly salient. First, a wide range of research has documented the importance of fathers' financial contributions and employment status as predictors of father involvement in parenting activities (Duncan & Brooks-Gunn, 2000; Duncan, Brooks-Gunn & Klebanov, 1994). Second, a large literature has shown that parents' relationship quality and marital status can have important implications for paternal parenting activities. This work has demonstrated that more supportive and more stable relationships are associated with increased paternal involvement in parenting (Hohmann-Marriott, 2011; Paulson, Dauber, & Leiferman, 2011; Sobolewski & King, 2005). Third, a growing body of research has sought to understand the transition to fatherhood, and fathers' own perceptions of the paternal role, in later father involvement in parenting activities (Cabrerra, Fagan, Farrie, 2008; Fagan & Palkovitz, 2011; Goldberg, 2011; McBride, et al., 2005). This literature is more mixed, with some tentative signs that paternal identity – especially among married or cohabiting fathers – may be associated with increased parenting involvement. Fourth, a more limited body of work has examined the association between fathers' support and involvement during pregnancy, and around the time of birth, and later parenting involvement. This literature has largely focused on prenatal involvement among cohabiting and married fathers (Bronte-Tinkew, Ryan, Carrano, & Moore, 2007; Cabrera, Fagan, & Farrie, 2008).

Fathers' prenatal involvement

The first tests of what might be called "the prenatal engagement hypothesis" were conducted during the 1980s. In a study of 40 couples, Palkovitz (1985) found that, contrary to his hypothesis, while all the fathers had planned to attend the birth of their child, 10 were unable to attend because of emergency cesareans or work schedule conflicts, and that these fathers had significantly higher parenting involvement with their children 5 months after birth than those who had been present. However, other work has instead found that fathers' presence at birth increasing father-infant attachment and later engagement (Chandler & Field, 1997; Palkovitz, 1982; Rodholm, 1981).

Research by Cabrerra and colleagues (2008) has shown that fathers' prenatal involvement is strongly associated with higher levels of paternal parenting engagement one and three years after birth. Work in this vein has largely focused on comparing unmarried (single and cohabiting) and married families. Although findings are somewhat mixed, it seems possible that encouraging father involvement beginning at birth may be a pathway for later parenting engagement (Cabrera, Hofferth & Chae, 2011; Carlson, 2006; Coley & Hernandez, 2006).

More recent research has focused specifically on non-resident fathers' presence at the birth of a child. Drawing on a sample of 248 low-income, unmarried, African-American mothers involved in a home visiting intervention, Bellamy and colleagues (2015) use propensity score matching techniques to test the effect of unmarried fathers' presence at birth on later parenting involvement. They find somewhat surprising results. As hypothesized, they find that fathers' presence at birth is associated with paternal child care 4 months post partum. However, they do not find any associations with presence at birth and father involvement in parenting when children were 12 months old. Surprisingly, they find that at 24 months the association between father presence at birth and later parenting involvement returns. The authors note this somewhat

puzzling finding and call for additional research. Results from this work provide some tentative indications that presence at birth may exert a powerful influence in non-resident fathers' later parenting. However, further investigation is needed to better understand the possible long-term effects.

Overall, tests of the prenatal engagement hypothesis have two key limitations. First, this literature has often grouped prenatal involvement and support and presence at and around the time of birth together. However, the psychological and life course transitions literature indicates that the effects of these actions on later involvement in direct parenting may work through separate mechanisms, with presence at birth potentially more greatly associated with infant-father attachment, and as a result, sustained parenting involvement (Grossman, et al., 2002; Grossman & Volkmer, 1984; Klein, et al., 1981; Streenberg & Morris, 1974). The psychological literature indicates that fathers who are present at the birth of a child have higher attachment scores (Bowen & Miller, 1980), and that fathers' presence at birth is a strong predictor of father-infant attachment over time (Peterson, Mehl, & Leiderman, 1979). Second, existing work may suffer from selection bias, as men who are more involved parents may have also been more likely to be involved in the prenatal process. Recent work by Bellamy and colleagues (2015) is perhaps the most methodologically rigorous examination of the question, though it consists of a fairly small sample, and provides somewhat puzzling findings.

THE CURRENT STUDY

The aim of this study is to examine the link between non-resident fathers' presence at the birth of a child and later parenting involvement in direct care activities and play when children are 1, 3, and 5 years old. Non-resident fathers are much less likely to be involved parents and the

predictors and mechanisms that lead to involvement in parenting are potentially quite different for them than for co-resident fathers. Importantly, one of the unique contributions of the present study is the use of both propensity score matching models and regression models with a rich set of pretreatment controls to address the potential selection bias issue of which fathers choose to be present at the birth, and whether such fathers are more likely to be involved parents.

DATA

I draw on data from the Fragile Families and Child Wellbeing Survey (FFCWS). This survey captures the experiences of parents with births between 1998 and 2000. Mothers and fathers were interviewed in the hospital or shortly after the birth of a child in 20 cities in 15 U.S. states. When weighted, the data is representative of births in U.S. cities with populations of 200,000 or more people. The respondents were re-interviewed by telephone when the children were 1, 3, 5, and 9 years old (Reichman, Teitler, Garfinkel & McLanahan 2001), and a subsample received in-home interviews when children were 3, 5, and 9 years old.

The present study includes fathers who have valid information on their presence at the time of the birth of their child (and were not incarcerated) as well as parenting outcome measures of direct care and play activities when their children were 1, 3, and 5 years old, as reported by the child's mother (N= 749). I focus on fathers who were not living with the focal child's mother at the time of the birth, and who were non-resident over the next five years. This allows for relationships with multiple transitions, for example parents who did not live with one another at the time of the birth of the focal child, subsequently cohabited with one another, and then broke up at a later wave. Fathers who were non-resident at the birth of the child but subsequently

married their child's mother are likely to be quite different from fathers who never marry, and may interact with their children in different ways.

As shown in Table 1, approximately 72% of fathers in the sample were present at the time of birth of the focal child. A majority of the sample were black (66.6%), and the remainder Hispanic (21.4%), white (9.8%), or other (2.1%). Fathers tended to be young with a mean age of 25.5 and 46.3% of focal children were the father's first child.

MEASURES

Presence at birth

At the baseline survey, mothers and fathers were interviewed at the hospital around the time of birth of their child (generally within 48 hours of the birth). Overall, 28% of fathers in the analytic sample reported not being present at the birth of the focal child.

Measures: Fathers' direct parenting involvement

At the 1, 3, and 5-year follow-up surveys, mothers were asked about fathers' involvement across a number of domains of parenting. I focus on two domains: play activities and direct care. To maximize sample size, I rely on mothers' reports of fathers' parenting activities. Mothers' reports of fathers' parenting may also be more reliable than fathers' reports. Prior research indicates that while fathers may exaggerate their own involvement, mothers may be more likely to underestimate fathers' involvement (Miller & Ross, 1975). Results from this work might be reasonably considered conservative estimates of the effect of non-resident fathers' presence at birth on later paternal involvement in parenting. Mothers indicated how many times per week fathers performed each of the play and direct care activities.

Direct care activities. Direct care activities include how many times per week fathers: hugged child, put child to bed, took child to visit relatives, fed child, changed diapers, included child in chores, took child on an outing, and told child that he appreciates something the child did. I create a sum scale that is the average number of times per week (0-7) that mothers reported fathers performing these activities (mean of direct care activities at year 1 = 3.79, α 0.87; year 3 = 2.22 , α 0.79; year 5 = 2.06, α 0.91).

Play activities. Play activities include how many times per week fathers: played games, played with toys, played with blocks, read stories, told stories, sang songs, watched TV or played video games with the child. I create a sum scale that is the average number of times per week (0-7) that mothers reported fathers performing these activities (mean of play activities at year 1 = 3.00, α 0.90; year 3 = 2.36, α 0.88; year 5 = 1.66, α 0.86).

Control variables

The analyses match on a host of pretreatment maternal, paternal, and child characteristics measured at baseline, and in later analyses employ these variables as covariates. I control for a number of fathers' socio-demographic characteristics including: race/ethnicity (White, Black, Hispanic, other); education level (less than high school, high school or equivalent, some college or greater); age at the time of birth of the focal child; and household income.

Next, I include controls for a number of measures of mother-father relationship quality, mothers' and fathers' desire to have a child, and whether they wanted the father to be involved in the child's life. These measures include: the level of mother-father relationship conflict (sum of mothers response to questions about their level of conflict about money, time, sex, pregnancy, alcohol and drug use, and relationship faithfulness); the number of years that mother and father knew each other before the birth of the focal child; whether the mother thought about, or the

father suggested, an abortion; whether the father wanted to be involved in the child's life and whether the mother wanted him involved; whether the father provided cash or in-kind support to the mother during the pregnancy; and whether the father's own father was involved during his childhood (see Table 1) (Carlson, 2004).

Child Characteristics

Child characteristics may be associated with father involvement in parenting. For instance, fathers may be more likely to be involved with male children. I include controls for child birth weight, gender, and whether the focal child was the fathers' first child.

ANALYTIC STRATEGY

There are a number of challenges in attempting to address the role of non-resident fathers' presence at the birth of a child on later parenting involvement. Perhaps foremost among these is that it may not be father presence itself that drives the association with later involved parenting, but rather that it is a particular type of father who is both more likely to be present at birth, and more likely to be an involved parent later on. To address this potential selection bias, I rely on several analytic approaches, including propensity score matching, regression-adjusted analysis (OLS) with propensity score weights and a rich set of controls, and city fixed effects. To check the robustness of these models, I also estimate OLS regressions with inverse probability weights (presented in the Appendix).

Propensity score matching

In the first set of analyses, propensity score matching methods are used to estimate the average effect of non-resident fathers' presence at the birth of the focal child on paternal direct care and play activities when children are 1, 3, and 5 years old. As demonstrated in Table 1,

fathers who were not present the birth were significantly different from fathers who were present across a number of important pre-treatment (presence at birth) and demographic indicators. Propensity score matching attempts to ameliorate these differences between treatment and control fathers through a matching process. However, it is important to note that propensity score matching requires the assumption of selection on observables. That is to say, it requires the assumption that all confounding covariates related to the treatment have been observed (Hill, Brooks-Gunn, & Waldfogel, 2013; Rosenbaum & Rubin, 1985).

Specifically, the propensity score is estimated by using the pretreatment father and child demographic measures, and father and mother measures of father prenatal involvement and relationship quality and history, to predict the probability of father presence at birth for each father. Next, fathers who were and were not present at the birth are matched using a one-to-one nearest neighbor matching with replacement technique. Nearest neighbor matching matches fathers who have the closest propensity score to one another, and replacement allows treatment fathers to be used in more than one match. As shown in Table 1, I conduct pre and post matching balance tests that indicate that the matching process was successful.

The first set of analyses (analysis 1 in Table 2) show the simple average differences in paternal direct care and play activities when children were 1, 3, and 5 years old between non-resident fathers who were present at birth and those who were not, in the matched sample.

Next, in the second set of analyses (analysis 2 in Table 2) I estimate the effect of non-resident fathers' presence at birth on later parenting by using regression-adjusted estimates after matching. Regression-adjustment may further reduce bias by taking into account the potential effect of pre-treatment covariates on the outcomes, in addition to their effect on selection into treatment. That is to say, regression-adjustment after matching accounts for effects of father,

child, and mother baseline pre-treatment characteristics on fathers' later parenting and not just their effect on which fathers select into being present at the birth of the child. In addition, I re-estimate this model (analysis 3 in Table 2) including city fixed effects to account for any city level variation in hospital availability, or other city level factors that may have influenced fathers' ability to get to the hospital for the birth.

Last, I test the robustness of these findings (Appendix), replacing the propensity score weights in the regression-adjustment in the final model with an inverse probability weighting approach, including city fixed effects. Inverse probability weighting reweights treatment and control groups to make them representative of the overall population. Using the previously estimated propensity scores, the weights are estimated as 1/P for fathers who were present at the birth and [1/(1-P)] for fathers who were not (Guo & Fraser, 2009).

RESULTS

Covariates and results from propensity score matching

Table 1 shows the descriptive statistics used in the propensity score matching process and as covariates in the regression-adjusted estimates. The first column shows mean descriptive statistics for the full sample (N=749). Overall, 72% of fathers were present at the time of birth of the focal child, for 46% of them the focal child was their first child. On average, fathers earned approximately $30,000 in the last year and were relatively young with an average age of 25.5. Fathers tended to have low levels of education (79% had a high school education or less) and were overwhelmingly black (66%). Fathers and mothers reported low levels of relationship conflict, and both nearly universally reported wanting the father to be involved in the focal child's life, and nearly all fathers provided support to the mother during her pregnancy.

Interestingly, although 34% of mothers reported having considered an abortion, only 12% of fathers reported having suggested one. This is in line with findings from Edin and Nelson (2013) indicating that men are likely to highly anticipate new births.

In columns 2 and 3 of Table 1, t-statistics indicate where fathers who were present at the birth differed from fathers who were not. Notably, fathers who were not present at birth were more likely to be black, have a low birth weight child, and have less than a high school education. Additionally, these men were more likely to have suggested that the mother have an abortion, and were less likely to have provided the mother with cash or in-kind support during her pregnancy.

Columns 4 and 5 demonstrate that after matching there is relatively little difference (none that are significant) between fathers who were present at the birth and those were not. That there were no significant differences between the groups indicates that the propensity score matching was a success and will therefore likely reduce the effect of any potential selection bias (Rosenbaum & Rubin, 1985; Zhai, Brooks-Gunn, & Waldfogel, 2013).

Effects of presence at birth on later parenting

The first column of Table 2 (analysis 1) shows the average effect of non-resident fathers' presence at birth on later paternal direct care and play activities (0-7 times per week). The results indicate that non-resident fathers' presence at the birth increases paternal direct care and play activities when children are 1, 3, and 5 years old, with declining returns as children age. When children were 1 years old, mean differences from analysis 1 indicate that non-resident fathers' who were present at the birth performed direct care activities an average of 0.74 ($p < 0.001$), and play activities 0.59 ($p < 0.01$) days more per week than non-resident fathers who were absent. At year 3 these estimates declined substantially for direct activities (to 0.28, $p <0.10$) and declined

somewhat for play activities (0.48, $p < 0.01$). When children were 5 years old, direct care activities remained largely stable (0.33, $p < 0.10$) and declined somewhat for play activities (0.33, $p < 0 .05$). Standardized effects are also presented and indicate that these results are least medium in size (Cohen, 1988), and are remarkably stable over time given the precipitous decline in overall non-resident father involvement as children age.

Analyses 2 and 3 in Table 2 (columns 2 and 3) present findings from regression-adjusted models. Analysis 2 presents OLS regression-adjusted estimates using propensity score weights and analysis 3 replicates this model adding city fixed effects. These models show very similar estimates as those from analysis 1. Non-resident fathers' presence at birth increases weekly paternal direct care activities when children were 1 and 3 years old, as compared to parenting by non-resident fathers who were not present (coefficients of approximately, 0.81 and 0.38; $p < 0.001$ and $p < 0.01$, respectively). Results also reveal somewhat similar standardized effects as those found in analysis 1 (0.17 and 0.10, for years 1 and 3 respectively).

In contrast, when children were 5 years old the effect of non-resident fathers' presence at birth (as opposed to absence) on paternal direct care, was not significant and the standardized effects are small. The trend between ages 1 and 5 can be seen most clearly in Figure 1. Importantly, the addition of city fixed effects in analysis 3 does little to alter the findings, though may slightly increase the magnitude of the estimates.

The bottom panel of Table 2 shows results when non-resident fathers' direct care activities is replaced with fathers' play activities. Analyses 2 and 3 show quite similar results as those in analysis 1. Non-resident fathers' presence at birth, as compared to absence, increases weekly paternal play activities when children are 1 and 3 years old (coefficients of approximately, 0.68 and 0.52; $p < 0.01$ and $p < 0.01$, respectively). In addition, the standardized

effects are quite similar to those found in analysis 1 (0.15 and 0.12 as compared to 0.22, for years 1 and 3). When children were 5 years old the effects of non-resident fathers' presence at birth on paternal play activities were not significant in the regression-adjusted models, and the standardized effects are quite small.

Robustness check

The Appendix shows results from OLS regressions with inverse probability weighting. Inverse probability weighting reweights treatment and control groups to make them representative of the overall population. Results from these estimates are remarkably similar to those from analyses 2 and 3 in Table 2. Both the coefficients and standardized effects are similar in the propensity score weighted and inverse probability weighted models (with city fixed effects). However, the inverse probability weighted OLS regression models are slightly larger than the propensity score weighted models for paternal direct care activities and paternal play activities. Unlike with the propensity score weighted regression-adjusted models, estimates of the effect of non-resident fathers' presence at birth on parenting engagement when children were 5 years old as compared to non-resident fathers who were not present at the birth are significant, although the standardized effects remain small. I rely on the propensity score models because of the risk that inverse probability weighted models may increase potential biases (Freedman & Berk, 2008)

DISCUSSION

This study examined the effects of non-resident fathers' presence at the birth of a child on paternal direct care and play activities when children were 1, 3, and 5 years old. The study draws on data from a large longitudinal birth cohort study and uses propensity score matching to

exploit variation in fathers' presence at birth in an effort to reduce potential selection bias. Overall, I find that non-resident fathers' presence at the birth of a child, as compared to non-resident fathers who were not present, increases paternal weekly parenting engagement when children were 1 years old, with declining – but moderate – effects when children were 3, and little effect when children were 5 years old.

I estimate both regression-adjusted propensity score weighted, and inverse probability weighted, OLS models with city fixed effects in an effort to test the robustness of the results and find largely consistent findings.

The results suggest that non-resident fathers' presence at the time of birth has a strong effect on later paternal parenting engagement. There are a number of possible explanations for why non-resident fathers' presence at the birth of a child might increase father involvement in parenting. First, a range of prior research indicates that in some cases mothers may prevent non-resident fathers' from interacting with their children (Allen & Hawkins, 1989). For example, poor relationship quality or the beginning of a new relationship with a social father might influence mothers to regulate non-resident fathers' involvement in parenting activities. However, non-resident fathers' presence at birth may signal to the mother that he is a committed father, resulting in a greater willingness by mothers to allow fathers' access to the child.

Second, non-resident fathers' presence at birth may confirm for him the reality of his impending parental duties. A growing body of research indicates that men who feel more connected to their identity as a father are more likely to be involved in parenting during their child's first 5 years of life (Goldberg, 2015). In this sense, non-resident fathers' presence at birth may increase the salience of the newfound paternal role. In addition, a range of findings from the medical literature indicate that fathers who are present at the birth of a child frequently

experience hormonal changes induced through the process of becoming a parent (Berg & Wynne-Edwards, 2001).

Third, non-resident fathers' presence at birth may also promote early father-child attachment, which may increase non-resident fathers' involvement in parenting over time. Indeed, findings from developmental psychology indicate that young children form similar attachment bonds to both mothers and fathers (Lamb, 1977). It may be, then, that non-resident fathers' presence at birth facilitates attachment and bonding. As a result, early secure attachment may increase the quality of the father-child relationship, and help to promote father involvement in parenting as children age.

Prior research on the determinants of father involvement in parenting has generally either looked to indicators of mother-father relationship quality, fathers' instrumental support of mothers, or fathers' economic wellbeing. A limited body of research has examined the role of fathers' presence and support at or around the time of birth of a child. However, the vast majority of this work has looked at middle class co-residential parents (see Bellamy, Thullen, & Hans, 2015, for a notable exception). In contrast, the experience of being present for the birth of a child may be particularly important for low-income, unmarried, non-resident fathers. In addition, the birth of a child may be a distinct predictor of father involvement compared with other measures of fathers' prenatal involvement. The birth of a child is seminal event in the lives of parents. The experience of being at the hospital, signing paternity documents, potentially cutting the umbilical cord, and related activities may be particularly impactful, and may encourage long term paternal involvement in parenting (Bellamy, Thullen, & Hans, 2015).

A limited number of studies have sought to estimate the association between fathers' presence at birth and later parenting, and have frequently been hampered by issues of selection

bias. I attempt to better understand the effect of non-resident fathers' presence at birth on later parenting by drawing on a unique set of measures of what can be thought of as "fathers' intent to parent" and "mothers' intent to allow for father involvement." By drawing on a robust set of "pre-treatment" measures of parents' desire to have a child, plans for father involvement in parenting, and relationship quality, I am able to draw on propensity score matching techniques which may reduce selection bias issues that have hampered prior work. That my findings are robust to various specifications and the inclusion of rich controls is notable, and may indicate that the effect of non-resident fathers' presence at birth on later engagement is not simply an artifact of "good guys," but may in fact be a pathway to increased father involvement in parenting.

LIMITATIONS

This study encounters a number of potential limitations. First, propensity score matching techniques are subject to strong assumptions of selection on observables. Although analyses control for a wide range of demographic, economic, relationship quality, and "intent to parent" variables, it is possible that if important covariates have gone unmeasured the estimates of the effect of non-resident fathers' presence at birth versus not present will be biased.

Second, mothers' reports of how many times per week the father is engaged in direct parenting activities with the child are subject to reporting bias as mothers may not be able to accurately recall fathers' engagement, may purposely under report direct paternal parenting involvement, or may prevent direct paternal parenting involvement even though the father would like to be involved. However, maternal reports of fathers' parenting involvement may be more reliable than fathers' self reports (Coley & Morris, 2002).

Overall, I find that non-resident unmarried fathers' presence at the birth of a child increases paternal involvement in direct care and play activities compared with fathers who were not present at birth. Though prior studies have grouped prenatal involvement and presence at birth together, this study finds that presence at birth may itself be an important predictor of father involvement in direct parenting, even when controlling for prenatal involvement, and that the effect of presence at birth increases father involvement through the first three years of a child's life.

CONCLUSIONS

In sum, the extant research has sought to better understand the determinants of non-resident fathers' involvement in parenting, and how best to encourage parenting involvement by these fathers. However, the majority of findings to date have largely found that non-resident father involvement in parenting has largely been a function of a type of "package deal" that is predicated on fathers' economic resources and relationship with the child's mother (Tach, Mincy, & Edin, 2010). A small literature has sought to distinguish whether fathers' prenatal support of mothers is associated with later father involvement. Similarly, a limited body of research has focused specifically on the role of fathers' presence at the birth of a child on later parenting involvement. However, small samples sizes and issues of selection bias have hampered this work. Using data from a large longitudinal birth cohort study, I draw on propensity score matching techniques to estimate the effect of non-resident fathers' presence at birth on later parenting involvement. I find that non-resident fathers' presence at birth predicts increased paternal involvement in parenting over the first five years of a child life, with declining returns.

Findings from this work offer a number of opportunities. First, further investigation of the mechanisms between fathers' presence at birth and later parenting is needed. In particular, it would be important to understand both the biological and social implications of these findings as they relate to changes in fathers' propensity to parent. Second, it may be that encouraging at risk fathers to attend the birth of their child could serve as an important policy mechanism to promote father involvement in parenting. Policymakers and researchers have long struggled to find viable strategies to promote parenting by low-income, at-risk, men. Encouraging fathers to attend the birth of their child may offer a low-cost, and potentially powerful, avenue forward.

Future work will draw on a number of additional pre-birth indicators of parental relationship quality, including paternal incarceration history, parents' expectations about marriage, and relationship status at baseline, among others. Additional pre-birth measures of parental relationship quality and "intent to parent" variables may further strengthen the power of the propensity score matching. In addition, future work will test the role of a number of potential mediators, including whether parents have entered into new partnerships and whether parents have had children with other partners. Last, I will compare results from ordinary least square regression models to results from models drawing on propensity score matching.

REFERENCES

Allen, S. M. & Hawkins, A. J. (1989). Maternal gatekeeping: Mothers' beliefs and behaviors that inhibit great father involvement in family work. *Journal of Marriage and Family, 61*(1), 199-212.

Amato, P. R., Meyers, C. E., & Emery, R. E. (1999). Changes in nonresident father-child contact from 1976-2002. *Family Relations. 58*(1), 41-53.

Amato, P. R. & Gilbreth, J. G. (1999). Nonresident fathers and children's well-being: A meta-analysis. *Journal of Marriage and Family, 61*(3), 557-573.

Amato, P. R. (1994). Father-child relations, mother-child relations, and offspring psychological well-being in early adulthood. *Journal of Marriage and Family, 56*(4), 1031-1042.

Argys, L. M., Peters, H. E., Brooks-Gunn, J. & Smith, J. R. (1998). The impact of child support on cognitive outcomes of young children. *Demography*, *35*(2), 159-173.

Bellamy, J., Thullen, M., & Hans, S. (2015). Effect of low-income unmarried fathers' presence at birth on involvement. *Journal of Marriage and Family, 77*(3), 647-661.

Berg, S. J. & Wynne-Edwards, K. E. (2001). Changes in testosterone, cortisol, and estradiol levels in men becoming fathers. *Mayo Clinic Proceedings 76*(6), 582-592.

Berger, L. M., Paxson, C., & Waldfogel, J. (2009). Income and child development. *Children and Youth Services Review*, *31*(1), 978-989.

Bronte-Tinkew, J., Suzanne, R., Carrano, J., & Moore, K. (2007). Resident fathers' pregnancy intentions, prenatal behaviors, and links to involvement with infants. *Journal of Marriage and Family*, 69, 977-990.

Brown, S. (2004). Family structure and child well-being: The significance of parental cohabitation. *Journal of Marriage and Family*, *66*(2), 351-367.

Cabrera, N., Hoffereth, S. & Chae, S. (2011). Patterns and predictors of father-infant engagement across race/ethnic groups. *Early Childhood Research Quarterly*, *26*(3), 365-375.

Cabrera, N., Fagan, J., & Farrie, D. (2008). Explaining the long reach of fathers' prenatal involvement on later paternal engagement. *Journal of Marriage and Family*, *70*, 1094-1107.

Carlson, M. J. (2006). Family structure, father involvement, and adolescent behavior outcomes. *Journal of Marriage and Family,* (*68)*, 137-154.

Carlson, M. J., & Corcoran, M. E. (2001). Family structure and children's behavioral and cognitive outcomes. *Journal of Marriage and Family*, *63*(3), 779-792.

Carlson, M. J., McLanahan, S. S. & Brooks-Gunn, J. (2008). Coparenting and nonresident fathers' involvement with young children after a nonmarital birth. *Demography*, *45*(2): 461-488.

Chandler, S. & Field, P. A. (1997). Becoming a father: First-time fathers' experience of labor and delivery. *Journal of Nurse-Midwifery, 42*(1), 17-24.

Cherlin, A. J. (2004). The deinstitutionalization of American marriage. *Journal of Marriage and Family*, *66*(4): 848-861.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

Coley, R. L., & Hernandez, D. C. (2006). Predictors of paternal involvement for resident and nonresident low-income fathers. *Developmental Psychology,* (42), 1041-1056.

Coley, R. L., & Morris, J. E. (2002). Comparing father and mother reports of father involvement among low-income minority families. *Journal of Marriage and Family, 64*(4), 982-997.

Duncan, G. J., & Brooks-Gunn, J. (2000). Family poverty, welfare reform, and child development. *Child Development, 71*(1), 188-196.

Duncan, G. J., Brooks-Gunn, J. & Klebanov, P. K. (1994). Economic deprivation and early childhood development. *Child Development, 65*(2), 296-318.

Edin, K. & Nelson, T. J. (2013). *Doing the Best I Can: Fatherhood in the Inner City*. Berkeley, CA: University of California Press.

Fagan, J. & Palkovitz, R. (2007). Unmarried, nonresident fathers' involvement with their infants: A risk and resilience perspective. *Journal of Family Psychology, 21*(3), 479-489.

Fagan, J. & Palkovitz, R. (2011). Coparenting and relationship quality effects on father engagement: Variations by residence, romance. *Journal of Marriage and Family, 73*, 637-653.

Fagan, J., Palkovitz, R., Roy, K., & Farrie, D. (2009). Pathways to paternal engagement: longitudinal effects of risk and resilience on nonresident fathers. *Developmental Psychology, 45*(5): 1389 – 1405**.**

Fomby, P., & Cherlin, A. J. (2007). Family instability and child well-being. *American Sociological Review*, *72*, 181-204.

Furstenberg, F. F. Jr., Sherwood, K. E. & Sullivan, M. L. (1992). Caring and paying: What father's and mothers say about child support: A report prepared for the parent's fair share demonstration. *Manpower Demonstration Research Corporation.*

Garfinkel, I., McLanahan, S. S. & Robins, P. (eds.). (1994). *Child Support and Child Wellbeing.* Washington, DC: The Urban Institute Press.

Gibson-Davis, C. M. (2011). Mothers but not wives: The increasing gap between nonmarital births and marriage. *Journal of Marriage and Family, 73*(1): 264-278.

Gibson-Davis, C. M. (2014). "Magic moment? Maternal marriage for children born out of wedlock." *Demography, 51*(4), 1345-1356.

Gibson-Davis, C. M., Edin, K. & McLanahan, S. S. (2005). High hopes but even higher expectations: The retreat from marriage among low-income couples. *Journal of Marriage and Family*, *67*, 1301-1312.

Grossman, K. & Volkmer, H-J. (1984). Father' presence during birth of their infants and paternal involvement. *International Journal of Behavioral Development, 7*(2), 2157-165

Guo, S., & Fraser, M. W. (2009). Propensity score analysis: Statistical methods and applications. Thousand Oaks, CA: Sage Publications, Inc.

Hill, L. J., Waldfogel, J., Brooks-Gunn, J., & Han, W. (2005). Maternal employment and child development: A fresh look using newer methods. *Developmental Psychology, 41*, 833−850.

Hofferth, S. L. (2006). Residential father family type and child well-being: Investment versus selection. *Demography*, *43*(1): 53-77.

Hohmann-Marriott, B. (2011). Coparenting and father involvement in married and unmarried coresident couples. *Journal of Marriage and Family, 73*(1): 269-309.

Kalil, A. (2003). Fathers' perceptions of paternal roles: Variations by marital status and living arrangement. Working Paper, Center for Research on Child Wellbeing, Princeton University. 2003-12-FF.

Klein, R., Gist, N., Nicholson, J., & Standley, K. (1981). A study of father and nurse support during labor. *Birth, 8*(3), 161-164.

Knox, V. W. (1996). The effects of child support payments on developmental outcomes for elementary school-age children. *The Journal of Human Resources, 31*(4), 816-840.

Lamb, M. E. (2010). *The Role of the Father in Child Development* (5th Edition). New Jersey: John Wiley & Sons.

Lamb, M. E., Pleck, J., Charnov, E., & Levine, J. (1987). A Biosocial Perspective on Parental Behavior and Involvement. In J. B. Lancaster, J. Altman, & A. Rossi (Eds.), *Parenting across the lifespan* (pp.11-42). New York: Academic Press.

Lamb, M. E., & Lamb, J. E. (1976). The nature and importance of the father-infant relationship. *The Family Coordinator*, *25*(4), 379-385.

Lamb, M. E. (1977). Father-infant and mother-infant interaction in the first year of life. *Child Development, 48*(1): 167-181.

Magnuson, K., & Berger, L. M. (2009). Family structure states and transitions: Associations with children's well-being during middle childhood. *Journal of Marriage and Family*, *71*, 575-591.

Manning, W. D., & Lichter, D. T. (1996). Parental cohabitation and children's economic wellbeing. *Journal of Marriage and Family, 58*(4), 998-1010.

McBride, B., Brown, G., Bost, K., Shin, N., Vaughn, B., & Korth, B. (2005).Paternal identity, maternal gatekeeping, and father involvement. *Family Relations, 54(*3), 360-372.

McLanahan, S. S., & Sandefur, G. (1994). *Growing Up with a Single Parent: What Hurts, What Helps.* Cambridge: Harvard University Press.

Miller, D. T. & Ross, M. (1975). Self-serving biases in the attribution of causality: Fact or fiction? *Psychological Bulletin, 82*(2), 213-225.

Osborne, C., & McLanahan, S. S. (2007). Partnership instability and child well-being. *Journal of Marriage and Family, 69*, 1065-1083

Page, Marianne, & Stevens, A. (2004). The Economic consequences of absent parents. *The Journal of Human Resources, 39*(1), 80-107.

Painter, G., & Levine, D. I. (2004). Daddies, devotion and dollars: How do they matter for youth? *American Journal of Economics and Sociology*, *63*(4), 813-850.

Palkovitz, Rob. 1985. Fathers' birth attendance, early contact, and extended contact with their newborns: A critical review." *Child Development,* 56(2): 392-406.

Palkovitz, R. (1982). Fathers' birth attendance, early extended contact, and father-infant interaction at five months post-partum. *Birth, 9*(3): 173-177.

Palkovitz, R. (1997). Reconstructing "involvement": Expanding conceptualizations of men's caring in contemporary families. Pp. 200-216 in *Generative Fathering: Beyond Deficit Perspectives* edited by A.J. Hawkins and D.C. Dollahite. Thousand Oaks, CA: Sage Publications.

Paulson, J., Dauber, S., & Leiferman, J. (2011). Parental depression, relationship wuality, and nonresident father involvement with their infants. *Journal of Family Issues, 32*(4): 528-549.

Reichman, N., Teitler, J. O., Garfinkel, I. & McLanahan, S. S. (2001). Fragile Families: Sample and design. *Children and Youth Services Review*, *23*(4/5), 303-326.

Rosenbaum, P. R., & Rubin, D. B. (1985). Constructing a control group using multivariate matched sampling methods that incorporate the propensity score. *Journal of the American Statistician, 39,* 33−38.

Roy, K. M. (2006). Father stories: A life course examination of paternal identity among low income African American men. *Journal of Family Issues*, *27*, 31-54.

Ryan, R. M., Kalil, A. & Leininger. L. (2009). Low-Income mothers' private safety nets and children's socioemotional well-being. *Journal of Marriage and Family, 71*(2), 278-297.

Seltzer, J. A., McLanahan, S. S., & Hanson, T. (1998). "Will child support enforcement increase father-child contact and parental conflict after separation?" Pp 157-190 in *Fathers under Fire: The Revolution in Child Support Enforcement* edited by Garfinkel, Irwin, Sara S. McLanahan, Daniel Meyer, and Judith A. Seltzer. New York: Russell Sage Foundation.

Sigle-Rushton, W., & McLanahan, S. S. (2002/3). For Richer or Poorer: Marriage as an Anti-Poverty Strategy in the US. *Population, 57*, 509-526.

Sobolewski, J., & King, V. (2005). The Importance of the coparental relationship for nonresident fathers' ties to children. *Journal of Marriage and Family, 67*(5), 1196-1212.

Tach, L., Mincy, R. & Edin, K. (2010). Parenting as a "Package Deal": Reltionships, fertility, and nonresident father involvement among unmarried parents. *Demography*, *47*(1), 181-204.

Waldfogel, J., Craigie, T-A., & Brooks-Gunn, J. (2010). "Fragile Families and Child Wellbeing." Pp. 87-112 in *The Future of Children: Fragile Families, Vol. 20, No. 2.* edited by McLanahan, Sara S., Ron Haskins, Christina Paxson, and Isabel Sawhill. Washington DC.: Brookings Press.

Wu, L., Cherlin, A. J., & Bumpass, L. L. (1996). Family structure, early sexual behavior, and premarital births. Paper presented at the 1996 Annual Meetings of the American Sociological Association, New York, NY.

Zhai, F., Waldfogel, J. & Brooks-Gunn, J. (2013). Estimating the effects of Head Start on parenting and child maltreatment. *Child and Youth Services Review, 35*, 119-1129.

Table 1. Means of covariates before and after matching[a]

	Full Sample	Unmatched		Matched	
		Present	*Not present*	*Present*	*Not present*
Father was present at the birth	72.0				
Child characteristics					
Low birth weight	12.4	10.4	17.6*	10.4	9.6
Child male	51.4	50.7	53.3	50.7	51.2
First Birth	46.3	51.0	34.3***	51.0	50.3
Father characteristics					
HH Income	30,021.01	29,151.06	32,253.88	29,151	28,542
Age	25.5	25.0	26.7**	23.42	23.18
Education					
Less than HS	38.3	36.2	43.8+	36.2	35.1
High school	40.9	41.9	38.1		
Some college or more	20.8	21.9	18.1	21.9	22.3
Race/ethnicity					
White	9.8	11.5	5.2**		
Black	66.6	629	76.7***	62.9	66.14
Hispanic	21.4	23.2	16.7***	23.2	24.4
Other	2.1	2.4	1.4	2.4	2.1
Relationship quality					
Relationship conflict	1.49	1.48	1.52	1.47	1.47
Mother thought about having an abortion	34.2	30.2	44.3***	30.2	35.1
Father suggested an abortion	12.0	9.5	18.6**	10.85	11.53
Father wants to be involved with baby	100.0	100.0	100.0	99.87	99.51
Mother wants father to be involved with baby	99.3	99,6	98.6		
Father provided cash or other support during pregnancy	97.1	98.3	93.8**	97.12	97.48

N	749	539	210	539	210

* $p<0.05$, ** $p< 0.01$, *** $p<0.001$

[a] indicates significant difference between groups

Table 2. Effects of Father Presence at the Time of Birth Compared to Absence

Panel 1: Direct care activities	Analysis 1[a]	Analysis 2[b]	Analysis 3[c]
Effect on Direct Care at Year 1			
Coeff	0.74***	0.78***	0.81***
Std Beta	0.23	0.16	0.17
Effect on Direct Care at Year 3			
Coeff	0.28+	0.36*	0.38*
Std Beta	0.17	0.10	0.10
Effect on Direct Care at Year 5			
Coeff	0.33+	0.31	0.29
Std Beta	0.20	0.07	0.07
Regression Adjusted	N	Y	Y
City Fixed Effects	N	N	Y
Panel 2: Play activities			
Effect on Play at Year 1			
Coeff	0.59**	0.66**	0.68**
Std Beta	0.22	0.14	0.15
Effect on Play at Year 3			
Coeff	0.48**	0.53**	0.52**
Std Beta	0.20	0.12	0.12
Effect on Play at Year 5			
Coeff	0.33*	0.30	0.28
Std Beta	0.18	0.08	0.07
Regression Adjusted	N	Y	Y
City Fixed Effects	N	N	Y
N		749	

Notes:

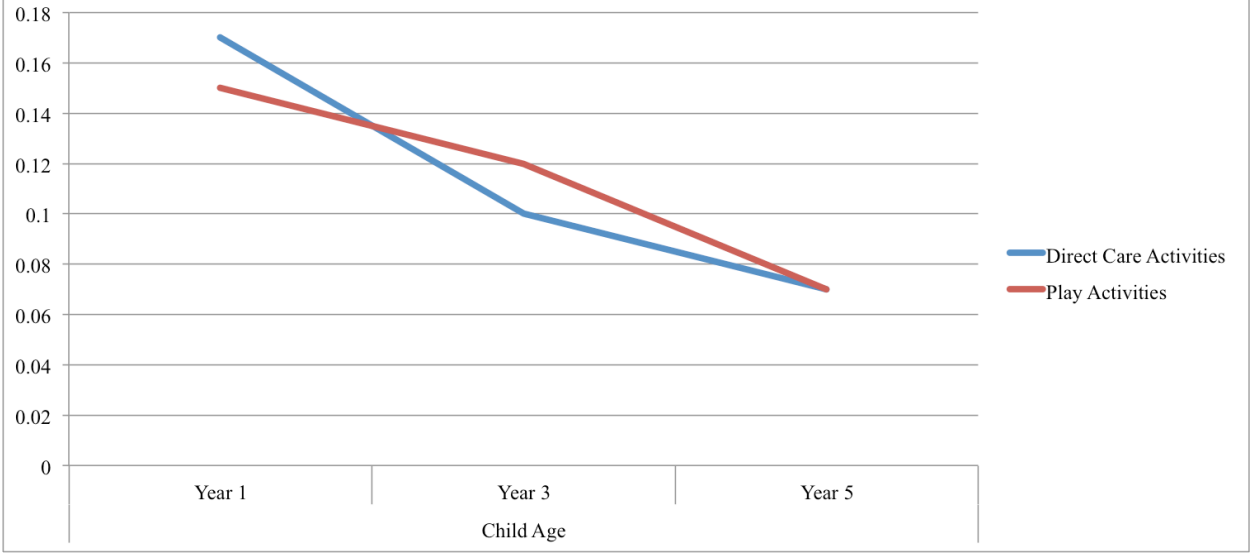
[a] Analysis 1 is the average effect of non-resident fathers' presence at birth

[b] Analyis 2 includes regression-adjusted estimates and covariates

[c] Analysis 3 includes city fixed effects

† p< 0.10, * p<0.05, ** p< 0.01, *** p<0.001

Figure 1. Effects of Father Presence at the Time of Birth on Direct Care and Play Acitivites: Standardized Betas from Regression-Adjusted OLS Models



Appendix. Effects of Father Presence at the Time of Birth on Paternal Direct Care & Play Activities: Coefficients from OLS Regression with Inverse Probability Weighting

	Direct care activities	**Play activities**
Year 1		
Coeff	0.84***	0.57**
Std Beta	0.17	0.12
Year 3		
Coeff	0.44**	0.40*
Std Beta	0.12	0.1
Year 5		
Coeff	0.39*	0.36*
Std Beta	0.09	0.09
Regression Adjusted	Y	Y
City Fixed Effects	Y	Y
N	749	

Notes:

† p< 0.10, * p<0.05, ** p< 0.01, *** p<0.001

Chapter 4: Single Mothers, the Role of Fathers, and the Risk for Child Maltreatment

INTRODUCTION

Child maltreatment, a broad category encompassing child abuse and child neglect, remains stubbornly high in the United States. Official data on investigations and substantiations of child maltreatment by state Child Protective Services (CPS) agencies indicate that substantiated (confirmed) cases of child maltreatment peaked in 1994 with approximately 1 million children, and dropped to a low of approximately 680,000 children in 2013 (Child Trends, 2015). However, the number of children reported to CPS agencies as possible victims of child maltreatment remains high – approximately 3 million in 2013 – and administrative records of substantiated child maltreatment likely undercount the number of children who are actually affected (Hampton & Newberger, 1985). In addition, these overall statistics mask important variation about the type of maltreatment experienced. In particular, although substantiated rates of physical and sexual child abuse have declined by over half (55% and 64%, respectively) since 1990, rates of child neglect have declined by only 13% in the same period (Finkelhor, Saito, & Jones, 2015).

There are striking inequalities in maltreatment rates by race/ethnicity and family structure. In 2013, the most recent year for which national data on substantiated child maltreatment is available, Black children had a substantiated maltreatment rate of 14.6 per one thousand children, compared to 8.5 and 8.1 for Hispanic and white children respectively (Child Trends, 2015). Similarly, children living with a single parent are thought to be at greater risk for child maltreatment than children living in married parent families. In addition to collecting yearly data on investigations and substantiations of child maltreatment from state Child Protective Services agencies, the U.S. Children's Bureau also conducts a periodic nationally representative study

(the National Incidence Study) of child maltreatment and a range of associated contextual factors. Between the Third National Incidence Study administered in 1996, and the Fourth National Incidence Study administered in 2010, children of single parents experienced a 58% increase in physical neglect and a 194% increase in emotional neglect. During the same period, children living in married parent families experienced a steady decline in the rate of neglect (Sedlak & Broadhurst, 1996; Sedlak, Mettenburg, Basena, Petta, McPherson, Greene, & Li, 2010).

Although the vast majority of the extant literature about the risk for child maltreatment has focused on mothers, a second more limited body of research has begun to investigate the role of fathers in the risk for child maltreatment. This work generally indicates that fathers are disproportionally associated with risk for child abuse given the amount of time they spend with children compared to mothers (Margolin, 1992), and that social fathers (non-biologically related men) may be more likely to maltreat than fathers who are biologically related to the child (Daly & Wilson, 1996).

A growing literature indicates that relationship transitions may have negative effects on child wellbeing that are distinct from those of static marital status (Fomby & Cherlin, 2007; Lee & McLanahan, 2015). In recent work, Schneider (2016) found that mothers' transitions to being single are associated with an increase in the risk for maternal high frequency spanking and psychological aggression, as well as large increases in the risk for maternal physical neglect and supervisory/exposure neglect. However, that work did not examine the potential buffering role of fathers, or potential variation by race/ethnicity.

It may be that non-resident fathers' economic contributions and involvement in parenting reduces the likelihood of child maltreatment by single mothers. Non-resident fathers' economic contributions may lessen the economic toil of single motherhood that has been linked to the

increased risk for child maltreatment. At the same time, non-resident fathers' co-parenting and direct involvement with the child might support mothers' positive parenting behaviors and aid in children's social-emotional adjustment, reducing the risk for child maltreatment. It is also possible that non-resident fathers' involvement with their children could serve a monitoring role, reducing the risk for maternal child maltreatment through fathers' presence in the child's life. Therefore, in this paper, I use data from the Fragile Families and Child Wellbeing Study (FFCWS) to investigate two hypotheses. First, I ask whether non-resident fathers' economic contributions and involvement in parenting moderate associations between mothers' transitions to being single and the risk for child maltreatment. Second, I ask whether these processes differ by race/ethnicity.

BACKGROUND

Child maltreatment

Child maltreatment is the overall term for two kinds of dangerous parenting practices, child abuse and child neglect, which themselves are made up of a range of parenting behaviors. Child abuse can be thought of as an act of commission – essentially an act that results in physical or emotional harm, sexual abuse, or in extreme cases death of a child. In contrast, Child neglect is often thought of as an act of omission by a parent or guardian – essentially a failure to act that puts children at serious risk of harm (Slack, Holl, McDaniel, Yoo, & Bolger, 2004).

Child neglect is by far the most prevalent type of child maltreatment (Slack et al., 2004). In general, about half of all allegations of maltreatment investigated by Child Protective Services agencies are for child neglect, while about one quarter are related to physical abuse and one quarter for sexual, emotional, and other types of abuse (Waldfogel, 1998; pg. 35). However, the

vast majority of empirical research has focused on child abuse, perhaps because it is far easier to capture in prospective studies than child neglect.

In contrast to child neglect, which is thought to be more closely tied to resource availability, the association between economic hardship and physical abuse is often thought to stem from the notion that poverty may diminish positive parenting, making parents more vulnerable to negative life events and more likely to engage in corporal punishment and other harsh parenting practices (Berger, 2005; McLoyd, 1990).

Single mothers, child wellbeing, and child maltreatment

The last 50 years have witnessed dramatic changes in family structure. By the late 1990's one quarter of all families and six in ten Black families were headed by single parents. Today, half of all marriages end in divorce and nearly half of all children born in the United States will spend some part of their childhood in a single parent or cohabiting household (Bzostek, McLanahan, & Carlson, 2012; Cherlin & Furstenberg, 1994).

A substantial body of research from the child maltreatment literature indicates that children living with single mothers may be more likely to experience maltreatment than children living in married parent households (Gil, 1971; Sedlak & Broadhurst, 1996). In particular, research indicates that low-income, single, working, mothers may be more likely to maltreat their children and be reported to CPS than their married peers (Paxson & Waldfogel, 1999), and that poverty may be closely tied to maltreatment among single mothers (Gelles, 1989).

Increasingly, research from sociology and demography has recognized that static measures of marital status may overlook important nuances about the rapid churning of relationships that occurs today. Recent work indicates that both the type of relationship

transition, as well as the number of transitions experienced, may negatively affect parenting and child wellbeing (Beck, Cooper, McLanahan, & Brooks-Gunn, 2010; Cooper, McLanahan, Meadows, & Brooks-Gunn, 2009; Fomby & Cherlin, 2007; Mitchell, et al., 2015; Schneider, 2016).

In contrast, the child maltreatment literature has largely relied on point in time measures of marital status, rather than relationship transitions. However, in recent work, Schneider (2016) finds that mothers' transitions to being single are associated with increases in the odds of the risk for neglect and some indicators of the risk for abuse. These findings were robust to the inclusion of a number of measures of mothers' health, economic wellbeing, and resources, which may indicate that some aspect about the process of transitioning to being single plays an important role in the risk for child maltreatment that is separate from accompanying changes in income, mental health, and other economic and social resources.

Theories about fathers' role in the family

The last few decades have witnessed large changes in normative views about the role of fathers in the family, with an increasing emphasis on fathers' active involvement in parenting as an important aspect of the modern fathering role. The increasing expectation that fathers be involved in the everyday activities of rearing children has generated the development of a number of theories about the determinants of involved fatherhood, as well as empirical investigations about the effect of fathers' parenting on children.

Perhaps the most widely applied theory of father involvement was developed by Lamb and Pleck and proposes three aspects of father involvement: (1) paternal engagement in direct parenting activities; (2) accessibility (i.e., availability to the child); and (3) responsibility (i.e., ensuring the child is cared for and has adequate resources) (Pleck, 2010; pg. 59). Early research

on fatherhood largely measured involvement by the frequency of contact between father and child or fathers' payment of child support. However, with the development of Lamb and Pleck's three-part conceptualization, researchers began to investigate not only the frequency of contact between father and child but also the content of those interactions (Amato & Gilbreth, 1999).

Theory on father involvement has also drawn on the "proximal processes" that are a key part of Bronfenbrenner's social-ecological theory (1986). In this context, fathers are part of children's microsystems, wherein children can experience positive proximal processes involving fathers that promote development. Pleck (2010) has also argued that to the extent that fathers do engage in different types of play ("rough and tumble" play for instance) than mothers, father-child interactions may represent a different kind of proximal process that may benefit children in ways that are unique to father-child interactions. In addition, fathers may bring distinct forms of social capital to the family. Fathers' income, networks, education, and kin may provide added resources for the child (Pleck, 2007).

Last, family systems theory has highlighted the importance of the transactional and bi-directional connections between fathers, mothers and children. For instance, a great deal of research has shown that poor mother-father relationships result in less father involvement and harsher interactions, and that behavior problems in children may result in decreased father involvement, though the directionality of this association is unclear (Amato & Dorius, 2010; pg. 177; Carlson & McLanahan, 2010; pg. 241).

Determinants of father involvement in parenting, and links with wellbeing

A range of empirical research has investigated the determinants of father involvement in parenting. Importantly, much of this work has examined differences by marital status, race/ethnicity, and child gender. The extant literature indicates large disparities in marital status

by racial/ethnic background. In 2008, for example, 71% of white children lived with both biological parents while only one-third of Black children did (Hofferth, Goldschneider, Curtin, & Hrapczynski, 2013).

In recent work Edin, Tach, and Mincy (2009) extended the idea of the "package deal," or the notion that father involvement is contingent on the mother-father relationship, by arguing that the prevailing norm of the package deal may prevent fathers from remaining involved with prior children after the creation of a new relationship and family. However, they also find that Black non-resident fathers were more likely than other men to stay involved in their children's lives after the end of a romantic relationship.

Common across these and similar studies are findings indicating that, (1) once relationships end father involvement in parenting tends to drop precipitously, (2) the quality of the mother-father relationship is an important factor in fathers' involvement; (3) Black fathers may be more likely to stay at least partially involved in their children's lives after the end of a relationship than others.

A number of studies have sought to understand whether father involvement influences child wellbeing. In their meta-analysis of studies examining non-resident father involvement in parenting and child wellbeing, Amato and Gilbreth (1999) find that fathers' payment of child support had the largest effect on child wellbeing. However, they also find that feelings of closeness between father and child and fathers' authoritative parenting style were associated with improvements in children's academic success and reductions in children's problem behaviors. In addition, although limited, some psychological studies of father involvement indicate that fathers have distinct effects from mothers on children's language development (Tamis-LeMonda,

Baumwell, & Cabrerra, 2013; pg. 144) and peer relations (Leidy, Schofield, & Parke, 2013; pg. 158).

Overall, there is growing evidence that father involvement may have important associations with children's wellbeing. However, the extent to which there are differences in the determinants and effects of father involvement by race/ethnicity and family structure continues to be investigated. For example, findings from the research literature seem clear that father involvement in the context of supportive, co-residential relationships can benefit children. It is somewhat less clear if non-resident father involvement, beyond child support payment, plays a similar role (Berger & Langton, 2011; Carlson & Magnuson, 2011).

Father involvement and child maltreatment

The role of fathers in the risk for child maltreatment has received scant attention in the empirical literature. As with research on child maltreatment in general, much of the existing research focuses on fathers' role in physical child abuse, although child neglect is much more prevalent. Nevertheless, a limited number of theories and empirical findings about fathers' role in the family and risk for child maltreatment exist.

In perhaps the most comprehensive theoretical framework, Guterman and Lee (2005) draw on social-ecological theory in describing the ways in which biological fathers' co-parenting, and positive involvement in parenting activities protect against, the risk for child maltreatment by mothers (Belsky, 1984). In this sense, fathers' support and direct involvement in parenting may buffer some of the socioeconomic and behavioral risk factors experienced by single mothers. However, other research indicates that fathers' greater access to their children is associated with an increase in the likelihood of maltreatment by both mothers and fathers (Lee, Altschul, & Gershoff, 2015; Radhakrishna, Bou-Saada, Hunter, Catellier, & Kotch, 2001).

In sum, single motherhood has been shown to be associated with the risk for child maltreatment. Recent research indicates that mothers' transitions to being single may particularly increase the risk for child neglect (Schneider, 2016). However, it may be that economic support and involvement in parenting by low-income non-resident fathers buffers the association between mothers' transitions to being single and mothers' risk for child maltreatment.

HYPOTHESIS 1: Non-resident fathers' involvement in parenting and economic contributions may partially moderate the association between mothers' transitions to being single and the risk for child maltreatment by mothers. Non-resident fathers' economic contributions may play a larger role in buffering the risk for maternal neglect than abuse.

Child maltreatment: The role of race/ethnicity

A long running topic in the child maltreatment literature is variation in parental disciplinary practices and child maltreatment across racial/ethnic groups (Gershoff, 2002). A number of studies have found that Black and Hispanic parents are more likely to use corporal punishment than white parents (Giles-Sims et al., 1995). In a closely related literature, researchers have long debated whether the use of spanking and corporal punishment is associated with increased risk for physical abuse. Corporal punishment is often described as occurring on a continuum wherein increased frequency and severity of corporal punishment is associated with increased risk for abuse (Gershoff, 2002). In addition, some have argued that spanking can be seen as a form of social control, and that for some groups (African-Americans in particular) it may be that the cultural and protective aspects of spanking are distinct from types of spanking that might be considered a risk for child abuse. McLoyd (1990) describes the use of "power assertive" parenting among poor Black mothers and fathers who highly value obedience and discipline.

Studies have found that Black children are overrepresented in the child welfare system (Fluke, Yuan, Hedderson, & Curtis, 2003), although why this might be is somewhat unclear

(Drake, Lee, & Jonson-Reid, 2009). It may be, for example, that the disproportionate number of Black children living in poverty – and poverty's close ties to child maltreatment – results in the disproportionate representation of Black children in the child welfare system. Alternatively, it may be that institutional bias results in higher numbers of Black parents being investigated for child maltreatment than white parents. Last, it may be that specific cultural parenting practices – an emphasis on parental authority and adherence for example – may result in higher levels of corporal punishment (McLoyd, Jayaratne, Ceballo, & Borques, 1994).

A growing body of research indicates that large numbers of parents are likely to experience multiple changes in marital status throughout children's childhoods, and that relationship transitions may pose particular risks to parenting quality and child wellbeing (Bzostek, McLanahan, & Carlson, 2012). It may be that transitions to being single pose particular risks for child maltreatment for Black mothers, who are more likely to experience a transition, than other mothers (Fomby & Cherlin, 2007). Alternatively, relationship transitions may be more normative for these mothers, resulting in less disruption of parenting behaviors.

In sum, the large disparities along racial/ethnic lines in the experience of both relationship transitions and the risk for child maltreatment might imply that mothers' transitions to being single may have differential associations by race/ethnicity with the risk for child maltreatment. To that end, I first propose that Black mothers' transitions to being single may be more likely to be associated with the risk for child maltreatment than white or Hispanic mothers' transitions. Second, some prior research indicates that Black non-resident fathers may be more likely to be involved in parenting than other fathers (Edin, Tach, & Mincy, 2009). To that end, parenting involvement by Black non-resident fathers may play a greater role in buffering the

association between mothers' transitions to being single and the risk for maternal child maltreatment.

HYPOTHESIS 2: Black mothers' transitions to being single will be more likely to be associated with the risk for child maltreatment than white or Hispanic mothers, and non-resident father involvement in parenting will play a greater role in buffering the risk for child maltreatment in Black families than white or Hispanic families.

DATA

I draw on data from the Fragile Families and Child Wellbeing Study (FFCWS), a longitudinal birth cohort study of approximately 5,000 families in 20 large U.S. cities in 15 states. At baseline, the study included an oversample of non-marital births and socioeconomically disadvantaged families. Families were interviewed around the time of birth of a child, and follow-up surveys were conducted when the focal child was 1, 3, 5, and 9 years old (Reichman, Teitler, Garfinkel, & McLanahan, 2001).

Measures of relationship status

Transitions to being single. At each wave, parents reported on their current relationship status with the focal child's other biological parent. I focus on mothers' reports of their transitions from marriage or cohabitation with the biological or social father to being single between the 1 year and 9 year follow up surveys.

Measures of the risk for child maltreatment

Risk of abuse. Beginning when children were approximately 1-years old, mothers were asked how often in the past month they had spanked their child (every or nearly every day, a few times a week, a few times a month, never). I recode spanking to create two dichotomous

indicators: (1) ever spanked, and (2) high frequency spanking (a few times a week or more). Although generally not considered child abuse itself, high frequency corporal punishment is often thought to be associated with the risk for child abuse (Gershoff, 2002).

Beginning when the focal child was 3 years old, mothers were asked about their own physically and psychologically aggressive parenting behaviors, drawn from the Conflict Tactics Scale for Parent and Child (CTPSC) (Strauss, Hamby, Finkelhor, Moore, & Runyan, 1998). This scale is frequently used as an indicator of the risk for child abuse. Physically aggressive parenting behaviors include: (1) hit child on the bottom with something like a belt, hairbrush, stick, or other hard object; (2) shook child; (3) spanked child on the bottom with your bare hand; (4) slapped child on the hand, arm, or leg; or (5) pinched child. Psychologically aggressive parenting behaviors include: (1) shouted, yelled, or screamed at child; (2) swore or cursed at child; (3) said you would send child away/kick out of the house; (4) threatened to spank or hit child but did not do it; or (5) called child dumb, lazy, or similar name. I recode these scales so that high frequency physically and psychologically aggressive behavior is defined as aggressive behavior that occurred 11 or more times in the past year.

Risk of physical neglect. I follow Font and Berger (2015) in constructing a measure of neglect. Child neglect consists of many possible components. Drawing on questions asked of mothers at each wave (beginning at age 3) I construct a measure of physical neglect based on several distinct indicators, including: whether the child did not receive sufficient food, whether the child did not receive needed medical care, whether the family was homeless or doubled-up, if the household had utilities shut off or was physically unsafe according to an in-home observer, or if the child appeared to have poor physical hygiene according to an in-home observer. Because many of the indicators were zero-skewed, I dichotomize all scales by creating a cutoff point at

the 90th percentile. I then sum the items and create a dichotomous indicator of any evidence of physical neglect (Berger, Font, Slack, & Waldfogel, 2013).

Risk of supervisory/exposure neglect. I also follow Font & Berger (2015) in constructing a measure of supervisory/exposure neglect (beginning at age 3). Supervisory and exposure neglect is potentially more difficult to discern because the signs are less obvious than those of physical neglect or child abuse. Determination of risk for supervisory/exposure neglect was based on four questions: if the child was left alone without an adult, if the child was exposed to parental substance abuse or domestic violence, or if the child was exposed to criminal activity. I again dichotomize all scales by creating a cutoff point at the 90th percentile. I then sum the items and create a dichotomous indicator of any evidence of supervisory/exposure neglect (Berger, Font, Slack, & Waldfogel, 2013).

Time-varying covariates

In all models I include measures of parent and child age at the time of the survey.

Additional time-varying covariates

Following Schneider (2016) I also seek to determine whether mothers' individual time-varying characteristics reduce the magnitude of the main associations. The Fragile Families Study contains a rich set of such measures at the 1, 3, 5, and 9 year follow-up surveys.

Depression. I draw on 15 questions designed to assess Major Depressive Episodes (MDE) derived from the Composite International Diagnostic Interview – Short Form (CIDI-SF) (Kessler et al., 1998). Parents were asked about their feelings of dysphoria or anhedonia in the past year that lasted for two weeks or more and if these symptoms occurred everyday and for how long. Parents were coded for depression if they reported two weeks of symptoms that lasted half of the day, almost every day.

Parenting stress. Parents were asked how strongly they agreed with four questions about feelings of being overwhelmed or discouraged by parenting responsibilities scored on a four point likert scale (strongly disagree to strongly agree).

Social support. Mothers' were asked a series of questions about whether they could ask family or friends for a small loan, help with childcare, or a place to live. I create I dichotomous indicator of whether parents could access any of these resources.

Household income. Mothers' reported the dollar amount of their household income in the last year.

Material hardship. An indicator of material hardship is based on parents' self report of whether they could not pay their rent or mortgage, were evicted due to nonpayment, could not pay the full amount of their utilities bill, needed medical attention but could not afford it, had telephone service or gas or heating oil cut off because they could not afford it, or received free food or meals.

Unemployment. At each wave mothers and fathers were asked whether they had worked a regular job for pay in the last week. Drawing on this information, I create a dichotomous indicator of current unemployment status.

Time-varying father moderators

To capture the effect of father involvement for mothers who have transitioned to being single, I consider a set of variables reflecting fathers' economic contributions and involvement in parenting. Each measure of father involvement is defined only for mothers who have transitioned to being single.

Child support. At each wave mothers were asked whether they had a formal or informal child support agreement with the focal child's biological father. If a child support agreement was

in place, mothers also reported how frequently fathers paid the agreed upon amount on time (never, less than half the time, about half the time, more than half of the time, all of the time)[2]. I recode this indicator to be a measure of whether father pays on time about half the time or more.

In kind support. At each wave mothers reported how often (often, sometimes, rarely, never) fathers provided a variety of goods. Items included, clothes, toys, medicine, child care items, food/formula, or other items, and varied to be developmentally appropriate.

Direct care. Mothers were also asked to report at each wave how often (number of days per week) fathers engaged in activities like changing diapers, feeding with a bottle, showing physical affection, and taking the child to visit relatives; the number and type of questions varied at each wave to be developmentally appropriate for the child's age.

Play activities. At each wave mothers also reported how frequently (number of days per week) fathers' engaged in play activities with the child. Activities included: read stories, told stories, played with blocks and toys, played games, and played outside, among others. The type of activities that were asked about varied by wave to be developmentally appropriate for the child's age.

ANALYTIC STRATEGY

I model the association between mothers' transitions to being single and the risk for child abuse and neglect estimated with odds ratios from logistic regressions. The data are restructured as person-wave files, with approximately 15,122 possible observations (for spanking, which draws on 4 waves of data). I use multiple imputation to impute missing information on covariates, however, I do not use imputed data for the dependent variables. All variables except two had less

[2] At the 5 and 9 year follow up surveys mothers were only asked whether fathers paid formal child support on time

than 20% missing information[3], with most missing less than 6%.

I begin by estimating individual fixed effects models investigating the association between mothers' transitions to being single and the risk for maternal spanking and high frequency spanking, high frequency physical and psychological aggression, and physical and supervisory/exposure neglect. Individual fixed effects models draw on mothers' transitions to being single, and compares mothers who are married or cohabiting with the child's biological father or a social father to mothers who are single.

Fixed effects models are useful because they aid in removing time-invariant differences in families. However, it remains possible that some unmeasured factor that varies over time may influence selection into a relationship transition. In addition, the fixed effects aid in relating the influence of relationship changes to change in the outcome.

I next add six additional time-varying covariates related to maternal parenting: depression, parenting stress, social isolation, household income, material hardship, and unemployment. If results are unchanged after the addition of these measures, it may provide additional evidence that transitions to being single are themselves an important risk factor for child maltreatment.

Next, I interact mothers' transitions to being single and each of the indicators of non-resident fathers' economic contributions and involvement in parenting. Interactions with odds ratios that are less than 1 indicate that non-resident father involvement moderates the association between mothers' transitions to being single and the risk for child maltreatment. Last, I re-estimate the above models, stratifying by race/ethnicity (Black, white, and Hispanic).

[3] Mothers' reports of fathers' child support payment and in kind support were missing approximately 50% information. Information on fathers' involvement was used only for single mothers. Multiple imputation was conducted using STATA 13's ICE software. Five datasets were imputed drawing on information from the outcomes, predictors, and mediators, as well as a range of related characteristics including child and parent age, race/ethnicity, parental education level, whether the focal child is the first birth, low birth weight, parental drug/alcohol use, child gender, and city.

RESULTS

Descriptive results

Table 1 shows descriptive statistics for mothers and fathers. Because I model the potential buffering role of non-resident father involvement in the association between mothers' transitions to being single and the risk for maternal child maltreatment, I begin by presenting measures of the frequency of single mothers' risk for child maltreatment. Single mothers reported spanking their child quite frequently beginning at 1-years old (32%), with a high of 53% when children were 3-years old, and declining after age 5. Single mothers' use of high frequency spanking also peaked when children were 3-years old, with about 13% of mothers reporting that they had spanked their child a few times a week or more. Both high frequency physical and psychological aggression were also highest when children were 3-years old (34% and 62%, respectively) and declined as children aged. At ages 3 and 5 nearly three-quarters of single mothers reported activities and environments that indicated a risk for physical neglect, while supervisory/exposure neglect was less frequent across all ages, though remained prevalent (16% at 3 and 5 years old, and 22% at 9-years old).

Fathers tended to be older than mothers and reported a range of involvement with their child. For example, although many non-resident fathers had formal or informal child support agreements when children were young (58% when children were 1-years old), the proportion declined precipitously as children aged. The proportion of non-resident fathers who paid the agreed upon amount of support on time half of the time or more was fairly consistent over time (61% when children were 1-years old). Overall, non-resident fathers were substantially involved in parenting activities in the first few years of children's lives, but with declining involvement over time.

Mothers' transitions to being single and the risk for child maltreatment

I begin by replicating findings from Schneider (2016). Model 1 in Table 2 shows results from individual fixed models relating the association between mothers' transitions to being single and each of the indicators of the risk for child maltreatment. Results indicate that mothers' transitions to being single are associated with a 43% (OR = 1.43) increase in the odds of high frequency maternal spanking, and are marginally associated with a 25% (OR = 1.25) increase in the odds of high frequency psychological aggression. Mother's transitions to being single are also associated with a 36% (OR = 1.36) increase in the odds of physical neglect and a 60% (OR= 1.60) increase in the odds of supervisory/exposure neglect.

Model 2 in Table 2 asks whether controlling for mothers' mental health, economic wellbeing, or resources, reduces the magnitude of the association between mothers' transitions to being single and mothers' risk for child abuse and neglect. Although some of the measures are significant, including them does not substantially alter the main findings.

Mothers' transitions to being single and the risk for child maltreatment: The buffering role of father involvement

Hypothesis 1 asks whether non-resident fathers' economic contributions and involvement in parenting moderate the association between mothers' transitions to being single and the risk for child maltreatment. Model 3 in Table 2 builds on model 2 by adding interactions between mothers' transitions to being single and a number of measures of non-resident fathers' economic contributions and involvement in parenting. The table demonstrates that non-resident fathers' on time payment of child support and in kind support may help to buffer the association between mothers' transitions to being single and the risk for high frequency maternal spanking (results are marginally significant) (interaction terms OR = 0.80 & 0.98, respectively). However, non-resident fathers' involvement does not appear to moderate the association between mothers'

transitions to being single and the risk for maternal high frequency psychological aggression.

In contrast, non-resident fathers' economic contributions and involvement in parenting appear to have a stronger role in buffering the association between mothers' transitions to being single and the risk for child neglect. Model 3 in Table 2 indicates that non-resident fathers' child support agreement, on time payment (marginally significant), and direct care, moderate the association between mothers' transitions to being single and the risk for physical neglect (interaction terms OR = 0.77, 0.79, & 0.97, respectively). Similarly, non-resident fathers' on time payment of child support and in kind support (in kind marginally significant) moderate the association between mothers' transitions to being single and the risk for supervisory/exposure neglect (interaction terms OR = 0.65 & 0.98, respectively).

Mothers' transitions to being single and the risk for child maltreatment: Differences by race/ethnicity

Hypothesis 2 asks whether mothers' transitions to being single, and the moderating role of father involvement, are differentially associated with the risk for child maltreatment by race/ethnicity. Model 1 in Table 3 demonstrates that becoming single is associated with a 62% (OR = 1.62) increase in the likelihood of high frequency spanking among Black mothers, but is not associated with high frequency spanking for white or Hispanic mothers. Similarly, the table indicates that mothers' transitions to being single are associated with a 43% increase in the odds of high frequency physical aggression and a 39% increase in the odds of high frequency psychological aggression among Black mothers (OR = 1.43 & 1.39, respectively), but associations for white and Hispanic mothers are not significant.

Turning to results for the risk for child neglect, model 1 in Table 4 demonstrates that mothers' transitions to being single are associated with a 38% and 79% increase in the odds of

physical neglect among Black and white mothers (OR = 1.38 & 1.79, respectively), but are not associated with increased risk of physical neglect among Hispanic mothers. Mothers' transitions to being single are associated with an increase in the odds of supervisory/exposure neglect among Black (38%), white (84%), and Hispanic (90%) mothers (OR = 1.38, 1.84, & 1.90, respectively).

Model 2 in Table 3 re-estimates model 1 and includes a number of indicators of mothers' health, economic wellbeing, and resources that may reduce the association between mothers' transitions to being single and the risk for child maltreatment. Although maternal depression, parenting stress, and material hardship are generally significant, including them in the model does little to reduce associations between mothers' transitions to being single and the risk for child abuse.

Model 2 in Table 4 follows the same process as above, investigating the possible role of mothers' health, economic wellbeing, and resources in reducing the association between mothers' transitions to being single and the risk for child neglect. Results reveal some evidence for the role of these measures. For example, mothers' material hardship somewhat reduces the magnitude of the association between white mothers' transitions to being single and the risk for physical and supervisory/exposure child neglect. Similarly, the magnitude of the odds ratio for Hispanic mothers' transitions to being single and the risk for supervisory/exposure neglect is reduced with the addition of indicators of maternal depression and material hardship.

Mothers' transitions to being single and the risk for child maltreatment: Differences by race/ethnicity and the role of possible moderators

Hypothesis 2 also asks whether the moderating role of non-resident fathers' economic contributions and involvement in parenting differs based on race/ethnicity.

Model 3 in Table 3 replicates model 2 and adds a series of interactions between mothers'

transitions to being single and indicators of non-resident fathers' economic contributions and involvement in parenting. Results indicate that non-resident fathers' in kind support (marginally significant) may aid in buffering the association between Black mothers' transitions to being single and the risk for maternal high frequency spanking (interaction terms OR = 0.98). However, overall, the results provide little evidence that non-resident fathers' involvement moderates associations with the risk for maternal child abuse.

In contrast, results shown in model 3 in Table 4 indicate that non-resident fathers' economic contributions and involvement in parenting moderates the risk for maternal child neglect, but in ways that differ by race/ethnicity. For example, non-resident fathers' child support agreement (marginally significant), on time payment of child support, and direct care moderate the association between Black mothers' transitions to being single and the risk for maternal physical neglect (interaction terms OR = 0.75, 0.76 & 0.96, respectively). In addition, for Black mothers, the results indicate that non-resident fathers' on time payment of child support and in kind support (in kind marginally significant) moderate the risk for supervisory/exposure neglect (interaction terms OR = 0.66 & 0.98, respectively).

Results for white mothers and fathers are similar to those of Black parents. Non-resident fathers' child support (marginally significant), on time payment of child support, and direct care (marginally significant), also moderate white mothers' transitions to being single and the risk for maternal physical neglect (interaction terms OR = 0.69, 0.67, & 0.90, respectively). In additions, non-resident fathers' direct care (marginally significant) may moderate the association between white mothers' transitions to being single and the risk for supervisory/exposure neglect (interaction term OR = 0.94).

For Hispanic mothers, non-resident fathers' on time payment of child support (marginally

significant) may moderate the association between mothers' transitions to being single and the risk for supervisory/exposure neglect (interaction term OR = 0.64).

DISCUSSION

This paper presents evidence that non-resident fathers' economic contributions and involvement in parenting play an important role in moderating the association between mothers' transitions to being single and the risk for child maltreatment, and that these processes may vary by race/ethnicity. The findings advance existing knowledge in both the family sociology and child maltreatment literatures about the positive role of non-resident fathers.

Mothers' transitions to being single and the risk for child maltreatment: The buffering role of father involvement

The role of fathers in the risk for child maltreatment by mothers has largely been neglected in the child maltreatment literature. The limited existing theoretical and empirical work examining the role of fathers has traditionally focused on the way in which fathers increase the risk for child maltreatment through their individual characteristics, relationships with the mother, and current marital status (Guterman & Lee, 2005). In contrast, a growing body of research from sociology and demography has sought to identify pathways through which fathers' involvement and parenting practices may positively impact child wellbeing (Carlson, McLanahan, & Brooks-Gunn, 2008). The present work seeks to merge these two distinct bodies of research by investigating whether non-resident fathers' economic contributions and involvement in parenting may moderate associations between mothers' transitions to being single and the risk for child maltreatment.

Importantly, I draw on measures of both non-resident fathers' economic contributions to

mother and child as well as measures of their direct involvement in parenting activities. Much of the existing work from the child maltreatment literature has focused on the impact that fathers' job loss, low-income, and absence from the home (in terms of resources) can have in increasing the risk for child maltreatment. Similarly, a large portion of the existing research on father involvement from the family sociology literature has measured father involvement by focusing on fathers' payment of child support and the number of days that the father has seen the child (Amato & Gilbreth, 1999), although work has increasingly looked at a broader range of measures of fathers' parenting.

I find limited evidence that non-resident fathers' economic contributions and involvement in parenting moderate the association between mothers' transitions to being single and the risk for child abuse. Mothers' transitions to being single are associated with a 42% increase in the odds of high frequency spanking, but non-resident father's on time payment of child support, in kind support, and direct care, are only marginally significant.

In contrast, non-resident fathers' economic contributions and involvement in parenting appear to play an important role in moderating the association between mothers' transitions to being single and the risk for physical and supervisory/exposure neglect. In these models, non-resident fathers' child support agreement, on time payment, in kind support, and direct care (depending on the model) indicate an important role for non-resident fathers in reducing the risk for maternal child neglect.

The findings suggest at least two possible explanations for how non-resident father involvement may play a greater role in moderating the risk for child neglect (than abuse) . First, non-resident fathers' *economic contributions* would likely have a direct effect on reducing mothers' economic hardship – a key component of neglect. Second, results demonstrating the

importance of non-resident fathers' *direct care* may indicate that greater monitoring of the child's wellbeing by fathers reduces the risk for maternal neglect. Alternatively, it may also be that non-resident fathers' direct care reduces the likelihood of physical neglect by providing temporary relief of mothers' parenting duties. This is an important finding because it implies that non-resident fathers' involvement - above and beyond economic factors - may be important in reducing the risk for maternal neglect, whereas mothers' parenting related to the risk for abuse may be less rooted in similar factors that could be comparably influenced by fathers.

Mothers' transitions to being single, father involvement, and the risk for child maltreatment: Differences by race/ethnicity

Strikingly, although I do not find overall associations between mothers' transitions to being single and the risk for child abuse (Table 2), I do find strong associations between mothers' transitions to being single and the risk for high frequency spanking, physical aggression, and psychological aggression among Black, but not white or Hispanic mothers (Table 3). However, I find that mothers' transitions to being single are associated with an increase in the risk for physical neglect for both Black and white mothers, but not Hispanic mothers, and mothers' transitions to being single are associated with an increase in the risk for supervisory/exposure neglect among Black, white, and Hispanic mothers.

The findings indicate that mothers' transitions to being single may have different implications for the risk for abuse and neglect depending on mothers' race/ethnicity. Mothers' transitions to being single and the risk for child abuse appears to be confined to Black mothers. In contrast, the risk for child neglect may be more closely related to measures of hardship that are likely to affect a broad range of mothers. Interestingly, the association between Hispanic mothers' transitions to being single and the risk for child maltreatment may be distinct from Black and white mothers'. Hispanic mothers' transitions to being single are not associated with

the risk for abuse or physical neglect, while black mothers' transitions to being single are associated with an increase in the risk for child abuse and neglect and white mothers' transitions to being single are associated with an increase in the risk for physical and supervisory/exposure neglect. It may be that parenting practices that are unique to Hispanic mothers play some mitigating role, or that single Hispanic mothers are more likely to live with other family members than Black or white single mothers.

Last, results indicate that non-resident fathers' economic contributions and involvement in parenting moderate the association between Black and white mothers' risk for neglect, but not the risk for abuse, indicating that that non-resident fathers' may be better equipped to play a buffering role in the risk for child neglect than abuse. It may be that non-resident fathers' are better able to intervene in relation to neglect, which may be more closely tied to household resources and childcare arrangements, rather than abuse, which may be more closely tied to mothers' parenting.

LIMITATIONS

This study faces several limitations. First, the study relies on mothers' self reported parenting behaviors that may be indicators of child maltreatment rather than on substantiated cases of child maltreatment. Second, although individual fixed effects models help to remove bias, there may be other time-varying characteristics that also affect the risk for becoming single or child maltreatment. Third, it is possible that non-resident fathers are involved in other domains of parenting that were unmeasured but were nonetheless important. Fourth, it is possible that some of the mediators may be endogenous. Future work will explore the temporal ordering of relationship transitions, mediators, and the risk for child maltreatment.

CONCLUSIONS

Drawing on theory and empirical findings from two literatures, child maltreatment and family sociology, this paper sought to investigate whether non-resident fathers' economic contributions and involvement in parenting moderates associations between mothers' transitions to being single and the risk for child maltreatment. In addition, it also sought to examine whether differences exist by race/ethnicity. The findings indicate that non-resident fathers' economic and parenting involvement may play a particularly important role in buffering the association between mothers' transitions to being single and the risk for child neglect. Although neglect has received less attention in the literature than child abuse, it is much more common, and as a result, findings from this work may point toward an important mechanism for reducing the risk for neglect. This study also finds some differences by race/ethnicity, with a suggestion that becoming a single mother may confer greater risk for maltreatment among Black mothers than for white or Hispanic mothers, but with non-resident fathers also playing a more important protective role for such families.

REFERENCES

Amato, P. R. & Gilbreth, J. G. (1999). "Nonresident fathers and children's well-being: A meta-analysis. *Journal of Marriage and Family, 61*(3), 557-573.

Amato, P. R., & Dorius, C. (2010). "Fathers Children, and Divorce." In *The Role of the Father in Child Development (Ed. Michael E. Lamb).* Hoboken, NJ: John Wiley & Sons, Inc.

Amato, P. R. (2001). "Children of divorce in the 1990's: An update of the Amato and Keith (1991) meta-analysis." *Journal of Family Psychology, 15*(3), 355-70.

Azar, S. T. (2002). "Parenting and child maltreatment." In M. H. Bornstein (Ed.) *Handbook of parenting: Vol. 4. Social conditions and applied parenting* (2nd Ed. Pp. 361-388). Mahwah, NJ: Lawrence Erlbaum.

Beck, A. N., Cooper, C. E., McLanahan, S., & Brooks-Gunn, J. (2010). "Partnership transitions and maternal parenting*." Journal of Marriage and Family, 72*(2), 219-233.

Belsky, J., & Vondra, J. (1989). "Lessons from Child Abuse: The Determinants of Parenting." In, *Child Maltreatment: Theory and Research on the Causes and Consequences of Child Abuse (Eds. Cicchetti, D. & Carlson, V.).* Cambridge, UK: Cambridge University Press.

Belsky, J. (1984). "The determinants of parenting: A process model." *Child Development*, *55*, 83–96.

Berger, L. M. (2005). "Income, family characteristics, and physical violence toward children." *Child Abuse & Neglect, 29,* 107-133.

Berger, L. M., & Langton, C. E. (2011). *The Annals of the American Academy of Political and Social Science (Special Editors. Smeeding, T. M., Garfinkel, I., & Mincy, R. B.), 365, 56-76.*

Berger, L. M., Font, S. A., Shook, K. S., & Waldfogel, J. (2013). "Income and child maltreatment: Evidence from the EITC." *Presented at the Association for Policy Analysis and Management Annual Meeting.*

Brayden, R. M., Altemeier, W.A., Ticker, D. D., Dietrich, M. S., & Vietze, P. (1992). "Antecedents of child neglect in the first two years of life." *Clinical Laboratory Observation, 120*(3), 426-429.

Bronfenbrenner, U. (1986). "Ecology of the family as a context for human development: Research perspectives." *Developmental Psychology, 22*(6), 723-742.

Brooks-Gunn, J. & Duncan G. J. (1997). "The effects of poverty on children." *The Future of Children, 7*(2), 55-71.

Bzostek, S. H., McLanahan, S., & Carlson, M. J. (2012). "Mother's repartnering after a nonmarital birth." *Social Forces, 90*(3), 817-841.

Carlson, M. J., & McLanahan, S. (2010). "Fathers in Fragile Families." In *The Role of the Father in Child Development (Ed. Michael E. Lamb).* Hoboken, NJ: John Wiley & Sons, Inc.

Carlson, M. J., & Magnuson, K. A. (2011). "Low-income fathers' influence on children." *The Annals of the American Academy of Political and Social Science (Special Editors. Smeeding, T. M., Garfinkel, I., & Mincy, R. B.), 365, 95-117.*

Carlson, M. J., McLanahan, S., & Brooks-Gunn, J. (2008). "Coparenting and nonresident fathers' involvement with young children after a nonmarital birth." *Demography, 45*(2), 461-488.

Cherlin, A. (2009). *The Marriage-Go-Round: The State of Marriage and the Family in American Today.* New York: Vintage Books.

Cherlin, A. J. & Fursternberg, F. F. Jr. (1994). "Stepfamilies in the United States: a reconsideration." *Annual Review of Sociology, 20*, 359-381.

Coleman, J. S. (1988). "Social capital in the creation of human capital." *American Journal of Sociology,* 94, S95-S120.

Cooper, E. C., McLanahan, S., Meadows, S., & Brooks-Gunn, J. (2009). "Family structure transitions and maternal parenting stress." *Journal of Marriage and Family, 71*(3), 558-574.

Daly, M. & Wilson, M. I. (1996). "Violence against stepchildren." *Current Directions in Psychological Science, 5*(3), 77-81.

Drake, B., Lee, S. M., & Jonson-Reid, M. (2009). "Race and child maltreatment reporting: Are Blacks overrepresented?" *Children and Youth Services Review, 31,* 309-316.

Eamon, M. K. (2001). "The effects of poverty on children's socioemotional development: An ecological systems analysis." *Social Work, 46*(3), 256-266.

Edin, K., Tach, L. & Mincy, R. (2009). "Claiming Fatherhood: Race and the Dynamics of Paternal Involvement among Unmarried Men." *Annals of the American Academy of Political and Social Science, 621,* 149-177.

Finkelhor, D., Saito, K., & Jones, L. (2015). "Update trends in child maltreatment." *Crimes Against Children Research Center.*

Finkelhor, D. & Dziuba-Leatherman, J. (1994). "Children as victims of violence: A national survey." *Pediatrics, 94*(4), 413.

Fluke, J. D., Yuan, Y. T., Hedderson, J., & Curtis, P. A. (2003). "Disproportionate representation of race and ethnicity in child maltreatment: Investigation and victimization." *Child and Youth Services Review, 25*, 359−373

Fomby, P., & Cherlin, A. J. (2007). "Family instability and child well-being." *American Sociological Review*, *72*, 181-204.

Garbarino, J., & Collins, C. C. (1999). "Child Neglect: The Family with a Hole in the Middle." In, *Neglected Children: Research, Practice, and Policy (Ed. Howard Dubowitz)*. Sage Publications.

Gelles, R. J. (1989). "Child abuse and violence in single-parent families: Parent absence and economic deprivation. *American Journal of Orthopsychiatry, 59,* 492-501.

Gershoff, E. T. (2002). "Corporal punishment by parents and associated child behaviors and experiences: A meta-analytic and theoretical review." *Psychological Bulletin, 128*(4), 539-579.

Gil. D. G. (1971). "Violence against children." *Journal of Marriage and Family, 33*(4), 637-648.

Giles-Sims, J. & Finkelhor, D. (1984). "Child abuse in stepfamilies." *Family Relations, 33*(3), 407-413.

Giles-Sims, J., Straus, M. A., & Sugarman, D. B. (1995). "Child, maternal, and family characteristics associated with spanking." *Family Relations, 44*(2), 70-176.

Guterman, N. B., Lee, Y., Lee, S. J., Waldfogel, J., & Rathouz, P. J. (2009). "Fathers and maternal risk for physical child abuse." *Child Maltreatment, 14*(3), 277-290.

Guterman, N. B., & Lee, Y. (2005). "The role of fathers in risk for physical child abuse and neglect: Possible pathways and unanswered questions." *Child Maltreatment, 10*, 136-148.

Hampton, R. L. & Newberger, E. H (1985). "Child abuse incidence and reporting by hospitals: Significance of severity, class, and race." *American Journal of Public Health, 75*(1), 56-60.

Harris, M. K., Furstenberg, F. F. Jr., & Marmer, J. K. (1998). "Paternal involvement with adolescents in intact families: The influence of fathers over the life course." *Demography, 35*(2), 201-216.

Hofferth, S. L., Pleck, J. H., Goldschneider, F., Curtin, S., & Hrapczynski, K. (2013). "Family Structure and Men's Motivation for Parenthood in the United States." In, *Handbook of Father Involvement: Multidisciplinary Perspectives (Eds. Cabrerra, N. J., & Tamis-LeMonda, C. S.)*. Routledge.

King, V. (1994). "Nonresident father involvement and child wellbeing being: Can dads make a difference?" *Journal of Family Issues, 15*(1), 78-96.

Kessler, R.C., Andrews, G., Mroczek, D., Ustun, T.B., Wittchen, H.-U. (1998). The World Health Organization Composite International Diagnostic Interview Short Form (CIDI-SF). *International Journal of Methods in Psychiatric Research*, *7*(4):171-185.

Landale, N. S. & Oropesa, R.S. (2001). "Father involvement in the lives of mainland Puerto Rican children: Contributions of nonresident, cohabiting and married fathers." *Social Forces, 79*, 945-968.

Lee, D. & McLanahan, S. (2015). "Family structure transitions and child development: Instability, selection, and population heterogeneity." *American Sociological Review, 80*(4), 738-763.

Lee, S. J., Altschul, I., Gershoff, E. T. (2015). "Wait until your father gets home? Mother's and fathers' spanking and development of child aggression." *Children and Youth Services Review, 52,* 158-166.

Leidy, M.S., Schofield, T. J., & Parke, R. D. (2013). "Fathers' Contributions to Children's Social Development." In, *Handbook of Father Involvement: Multidisciplinary Perspectives (Eds. Cabrerra, N. J., & Tamis-LeMonda, C. S.).* Routledge.

Magnuson, K. & Berger, L. M. (2009). "Family structure states and transitions: Associations with children's well-being during middle childhood." *Journal of Marriage and Family, 71*(3), 575-591.

MacKenzie, M. J., Nicklas, E., Waldfogel, J. & Brooks-Gunn, J. (2013). "Spanking and child development across the first decade of life." *Pediatrics, 132*(5), 1118-1125.

Mani, A., Mullainathan, S., Shafir, E., & Zhao, J. (2013). "Poverty impedes cognitive function." *Science, 341*(6149), 976-980.

Margolin, L. (1992). "Child abuse by mothers' boyfriends: Why the overrepresentation?" *Child Abuse & Neglect, 16,* 541-551.

McLanahan, S., Tach, L., & Schneider, D. (2013). "The causal effects of father absence." *Annual Review of Sociology, 39*, 399-427.

McLanahan, S. & Sandefur, G. (1994). *Growing Up With a Single Parent: What Hurts, What Helps.* Cambridge, MA: Harvard University Press.

McLoyd, V. C. (1990). "The impact of economic hardship on Black families and children: psychological distress, parenting, and socioemotional development." *Child Development, 61,* 311-346.

McLoyd, V. C., Jayaratne, T. E., Ceballo, R., & Borquez, J. (1994). "Unemployment and work interruptions among African American single mothers: Effects of parenting and adolescent socioemotional functioning." *Child Development, 65*(2), 562-589.

Mitchell, C., McLanahan, S., Notterman, D., Hobcraft, J., Brooks-Gunn, J., & Garfinkel, I. (2015). "Family structure instability, genetic sensitivity, and child wellbeing." *American Journal of Sociology, 120*(4), 1195-1225.

Paxson, C. & Waldfogel, J. (1999). "Parental resources and child abuse and neglect." *The American Economic Review, 89*(2), 239-244.

Paxson, C. & Waldfogel, J. (2003). "Welfare reforms, family resources, and child maltreatment." *Journal of Policy Analysis and Management, 22*(1), 85-113.

Pleck, J. H. (2010). "Fatherhood and Masculinity." In, *The Role of the Father in Child Development (Ed. Lamb, M. E.)*. John Wiley & Sons.

Pleck, J. H. (2007). "Why could father involvement benefit children? Theoretical perspectives." *Applied Developmental Science, 11*(4), 196-202.

Radhakrishna, A. Bou-Saada, E., Hunter, W. M., Catellier, D. J., & Kotch, J. (2001). "Are father surrogates a risk factor for child maltreatment?" *Child Maltreatment, 6,* 281-289.

Reichman, N. E., Teitler, J. O., Garfinkel, I., McLanahan, S. S. (2001). "Fragile Families: Sample and design." *Children and Youth Services Review, 23*(4-5), 303-326.

Schneider, W. (2016). "Relationship transitions and the risk for child maltreatment." *Under review.*

Sedlak, A.J., Mettenburg, J., Basena, M., Petta, I., McPherson, K., Greene, A., and Li, S. (2010). "Fourth National Incidence Study of Child Abuse and Neglect (NIS–4): Report to Congress." Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families.

Sedlak, A.J., Broadhurst, D.D. (1996). "National Study of the Incidence of Child Abuse and Neglect: Data Collection Report." (Prepared under contract to the National Center on Child Abuse and Neglect, U.S. Department of Health and Human Services). Rockville, MD: Westat.

Slack, S. K., Holl, J. L., McDaniel, M., Yoo, J., & Bolger, K. (2004). "Understanding the risks of child neglect: An exploration of poverty and parenting characteristics." *Child Maltreatment, 9,* 395-408.

Strauss, M. A., Hamby, S. L., Finkelhor, D., Moore, D. W., & Runyan, D. (1998). "Identification of child maltreatment with the parent-child conflict tactics scales: Development and

psychometric data for a national sample of American parents." *Child Abuse & Neglect, 22*(4), 249-270.

Tamis-LeMonda, C. S., Baumwell, L., & Cabrerra, N.J. (2013). "Fathers' Role in Children's Language Development." In, *Handbook of Father Involvement: Multidisciplinary Perspectives (Eds. Cabrerra, N. J., & Tamis-LeMonda, C. S.)*. Routledge.

Waldfogel, J. (1998). *Future of Child Protection: How to Break the Cycle of Abuse and Neglect.* Cambridge, MA: Harvard University Press.

Table 1. Descriptive statistics

	Age 1		Age 3		Age 5		Age 9	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Maternal risk for child maltreatment (among single mothers)								
spanking	0.32	0.47	0.53	0.50	0.49	0.50	0.14	0.34
high frequency spanking	0.08	0.27	0.13	0.33	0.08	0.27	0.04	0.20
high frequency physical aggression			0.34	0.47	0.24	0.43	0.08	0.27
high frequency psychological aggression			0.62	0.49	0.60	0.49	0.38	0.49
physical neglect			0.72	0.45	0.74	0.44	0.46	0.50
supervisory/exposure neglect			0.16	0.45	0.16	0.45	0.22	0.48
Time-varying covariates (mothers)								
single	0.38	0.50	0.39	0.50	0.40	0.50	0.40	0.49
age	26.43	6.06	28.21	6.06	30.31	6.05	34.44	6.01
depression	0.16	0.36	0.21	0.40	0.17	0.38	0.18	0.38
parenting stress	4.89	2.50	4.99	2.67	4.72	2.73	4.13	2.73
social support	0.25	0.43	0.26	0.44	0.24	0.43	0.24	0.43
household income ($)	32019.7 5	35660.3 6	35623.5 1	44041.2 6	37509.0 5	43869.4 6	44999.3 4	50115.5 6
material hardship	0.64	1.03	0.65	1.03	0.67	1.05	0.83	1.13
unemployed	0.47	0.50	0.44	0.50	0.41	0.49	0.35	0.48
Time-varying covariates and potential moderators (among single fathers)								
age	29.18	7.23	31.07	7.33	33.21	7.31	37.39	7.18
have formal/informal child support agreement	0.58	0.49	0.52	0.50	0.16	0.36	0.32	0.47
pay child support on time (half time or more)	0.61	0.49	0.61	0.49	0.40	0.49	0.51	0.50
provide in-kind support to child[a]	6.68	6.04	5.67	5.13	4.29	4.66	10.42	8.33
direct care of child[b]	18.23	11.48	12.57	8.56	6.00	4.20	8.74	6.31
engage in play activities with child[c]	15.14	11.09	13.77	11.20	14.37	11.70	6.54	5.11
child age (in months)	15.02	3.48	35.78	2.58	61.87	2.85	112.67	4.57

Table 1. Descriptive statistics continued		
Time-invariant characteristics		
child gender (male)	0.52	0.50
Mothers' characteristics		
Race/ethnicity		
White	0.21	0.41
Black	0.48	0.50
Hispanic	0.27	0.45
other	0.04	0.2
Education		
less than high school	0.35	0.48
high school or equivalent	0.30	0.46
some college	0.24	0.43
college or more	0.11	0.31
Fathers' characteristics		
White	0.20	0.40
Black	0.49	0.50
Hispanic	0.27	0.45
other	0.04	0.20
Education		
less than high school	0.32	0.47
high school or equivalent	0.36	0.48
some college	0.21	0.41
college or more	0.11	0.31

[a] range = 0-27, but varies by wave

[b] range = 0-35, but varies by wave

[c] range = 0-42, but varies by wave

Table 2. Transitions to Single and Mothers' Parenting: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects (model 1)[a], Additional Covariates (model 2)[b], and Possible Moderators (model 3)[c]

	Spanking			High frequency Spanking			High frequency physical aggression			High frequency psychological aggression		
	Model 1	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*
Relationship status												
Single	1.10	1.08		1.43**	1.42**		1.30	1.32		1.25+	1.21	
(ref. all other marital statuses)												
Time-varying covariates												
child's age	0.99	1.00		0.97*	0.97*		0.97*	0.97*		0.98*	0.98*	
mother's age	1.01	0.99		1.31+	1.31+		0.99	0.98		1.06	1.07	
father's age	0.99	0.99		1.02	1.02		0.98	0.98		0.98	0.98	
Additional time-varying covariates												
depression		1.19*			1.29*			0.8			0.89	
parenting stress		1.15***			1.17***			1.05+			1.07***	
social support		1.08			0.99			0.87			1.15	
household income		1.00			1.00			1.00			1.00+	
material hardship		1.01			1.05			1.19**			1.05	
unemployed		0.91+			0.91			1.29*			0.92	
Moderators												
single*fathers' child support			0.67***			1.18			1.17			0.95
single*father pays on time			0.83*			0.80+			0.91			0.94
single*fathers' in kind support			0.97***			0.98+			1.00			1.01
single*fathers' direct care			0.99**			1.00			0.98			1.00
single*fathers' play			1.01			1.00			0.98			1.01
N		8,796			2,780			3,023			4,006	

Note: missing information on covariates imputed

[a]Model 1 includes relationship transition and child and parent age

[b]Model 2 replicates model 1 but includes each of the listed time-varying mediators

[c] Model 3 adds an interaction for each moderator to model 2

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2 Continued. Transitions to Single and Mothers' Parenting: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects (model 1)[a], Additional Covariates (model 2)[b], and Possible Moderators (model 3)[c]

	Physical neglect			Supervisory/ exposure neglect		
	Model 1	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*
Relationship status						
Single	1.36**	1.40***		1.60***	1.58**	
(ref. all other marital statuses)						
Time-varying covariates						
child's age	0.97***	0.97***		1.00	1.00	
mother's age	1.19	1.20		1.18	1.17	
father's age	1.00	1.00		1.02	1.02	
Additional time-varying covariates						
depression		1.15			1.48***	
parenting stress		1.01			1.02	
social support		1.01			1.16	
household income		1.00			1.00	
material hardship[d]		1.65***			1.26***	
unemployed		0.99			0.73**	
Moderators						
single*fathers' child support			0.77*			0.99
single*father pays on time			0.79+			0.65*
single*fathers' in kind support			0.99			0.98+
single*fathers' direct care			0.97**			0.99
single*fathers' play			1.00			0.99
N		5,384			2,840	

[a]Model 1 includes relationship transition and child and parent age

[b]Model 2 replicates model 1 but includes each of the listed time-varying mediators

[c] Model 3 adds an interaction for each moderator to model 2

[d]When physical neglect is the outcome, the material hardship scale omits overlapping items

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 3. Transitions to Single and Mothers' Parenting by Race/Ethnicity: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects[a], Additional Covariates[b], and Possible Moderators[c]

	Spanking								
	Black			*White*			*Hispanic*		
	Model 1	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*
Relationship status									
Single	1.12	1.08		1.37+	1.34		0.97	1.00	
(ref. all other marital statuses)									
Time-varying covariates									
child's age	0.99	0.99		1.02	1.02		0.99	1.00	
mother's age	0.97	0.97		0.81	0.80		1.03	1.02	
fathers' age	0.99	0.99		0.99	0.99		1.01	1.01	
Additional time-varying covariates									
depression		1.24*			1.06			1.10	
parenting stress		1.12***			1.20***			1.14***	
social support		0.78			1.30			0.68	
household income		1.00			1.00			1.00+	
material hardship		1.07			1.02			0.94	
unemployed		0.86+			1.03			0.89	
Moderators									
single*fathers' child support			0.66***			0.65+			0.67+
single*father pays on time			0.79*			0.91			0.83
single*fathers' in kind support			0.97***			0.98			0.98
single*fathers' direct care			0.98***			1.01			0.97*
single*fathers' play			1.00			1.01			1.00
N	4,477			1,869			2,150		

Table 3, Continued. Transitions to Single and Mothers' Parenting by Race/Ethnicity: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects[a], Additional Covariates[b], and Possible Moderators[c]

	High frequency Spanking								
	Black			*White*			*Hispanic*		
	Model 1	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*
Relationship status									
Single (ref. all other marital statuses)	1.59**	1.62**		1.02	0.97		1.27	1.14	
Time-varying covariates									
child's age	0.98+	0.98*		1.01	1.01		0.97	0.99	
mother's age	1.07	1.11		0.91	0.88		1.13	1.13	
fathers' age	1.03	1.04+		0.99	0.99		0.97	0.98	
Additional time-varying covariates									
depression		1.27			1.06			1.99*	
parenting stress		1.16***			1.16*			1.24***	
social support		1.04			1.01			0.37+	
household income		1.00*			1.00			1.00	
material hardship		1.032			1.03			1.03	
unemployed		0.96			1.10			0.70	
Moderators									
single*fathers' child support			1.31			0.95			0.87
single*father pays on time			0.86			1.07			0.53
single*fathers' in kind support			0.98+			0.99			0.96
single*fathers' direct care			0.99			1.02			0.99
single*fathers' play			0.99			1.02			0.99
N	1,678			520			457		

Table 3 Continued. Transitions to Single and Mothers' Parenting by Race/Ethnicity: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects[a], Additional Covariates[b], and Possible Moderators[c]

	High frequency physical aggression								
	Black			*White*			*Hispanic*		
	Model 1	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*
Relationship status									
Single	1.39*	1.43+		1.35	1.07		1.70	1.90	
(ref. all other marital statuses)									
Time-varying covariates									
child's age	0.94***	0.96**		1.02	1.01		1.01	1.02	
mother's age	1.60*	1.23		0.51	0.56		0.64	0.61	
fathers' age	0.97	0.97		0.98	0.95		0.98	0.97	
Additional time-varying covariates									
depression		0.79			0.61			0.91	
parenting stress		1.05			1.06			1.07	
social support		0.89			1.49			0.77	
household income		1.00			1.00			1.00	
material hardship		1.20*			1.60**			1.00	
unemployed		1.39*			0.96			1.94*	
Moderators									
single*fathers' child support			1.20			1.50			0.83
single*father pays on time			0.82			1.23			0.80
single*fathers' in kind support			0.99			1.02			0.99
single*fathers' direct care			0.99			0.92+			0.98
single*fathers' play			0.99			0.96			0.96
N	1,774			623			529		

Table 3 Continued. Transitions to Single and Mothers' Parenting by Race/Ethnicity: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects[a], Additional Covariates[b], and Possible Moderators[c]

	High frequency psychological aggression								
	Black			*White*			*Hispanic*		
	Model 1	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*
Relationship status									
Single	1.41*	1.39+		0.82	0.77		1.38	1.39	
(ref. all other marital statuses)									
Time-varying covariates									
child's age	0.98	0.98		0.99	0.99		0.99	0.99	
mother's age	1.05	1.03		1.05	1.08		0.87	0.89	
fathers' age	0.98	0.98		0.96	0.95		1.00	1.00	
Additional time-varying covariates									
depression		0.90			1.12			0.76	
parenting stress		1.05+			1.14*			1.07+	
social support		0.87			0.30+			0.84	
household income		1.00			1.00*			1.00	
material hardship		1.08			1.09			1.00	
unemployed		0.91			0.92			0.88	
Moderators									
single*fathers' child support			0.89			0.90			1.07
single*father pays on time			0.90			0.94			0.98
single*fathers' in kind support			1.00			1.02			1.01
single*fathers' direct care			1.01			0.95			1.00
single*fathers' play			1.01			0.98			1.00
N	2,029			789			1,026		

Note: missing information on covariates imputed

[a]Model 1 includes relationship transition and child and parent age

[b]Model 2 replicates model 1 but includes each of the listed time-varying mediators

[c] Model 3 adds an interaction for each moderator to model 2

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 4. Transitions to Single and Mothers' Parenting by Race/Ethnicity: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects[a], Additional Covariates[b], and Possible Moderators[c]

	Physical neglect								
	Black			*White*			*Hispanic*		
	Model 1	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*
Relationship status									
Single	1.40**	1.38**		1.89**	1.79**		1.25	1.19	
(ref. all other marital statuses)									
Time-varying covariates									
child's age	0.97*	0.97*		0.99	0.99		0.97+	0.97+	
mother's age	1.20	1.18		0.86	0.88		1.24	1.27	
fathers' age	0.99	0.99		1.01	1.01		1.01	1.01	
Additional time-varying covariates									
depression		1.36*			0.85			1.02	
parenting stress		1.01			1.03			1.02	
social support		1.07			1.02			0.87	
household income		1.00			1.00			1.00	
material hardship[d]		1.65***			2.12***			1.37*	
unemployed		1.00			0.95			1.02	
Moderators									
single*fathers' child support			0.75+			0.69+			1.01
single*father pays on time			0.76*			0.67*			0.86
single*fathers' in kind support			0.99			0.99			1.00
single*fathers' direct care			0.96*			0.90+			0.98
single*fathers' play			1.00			0.95			1.01
N		2,661			1,199			1,273	

Table 4, Continued. Transitions to Single and Mothers' Parenting by Race/Ethnicity: Odds Ratios from Logistic Regression; Pooled, Individual Fixed-Effects[a], Additional Covariates[b], and Possible Moderators[c]

	Supervisory/exposure neglect								
	Black			*White*			*Hispanic*		
	Model 1	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*
Relationship status									
Single	1.38*	1.38*		1.98**	1.84*		2.08***	1.90**	
(ref. all other marital statuses)									
Time-varying covariates									
child's age	1.00	1.00		0.99	0.98		1.00	1.00	
mother's age	1.06	1.04		1.33	1.40		1.11	1.21	
fathers' age	1.02	1.02		1.02	1.01		1.03	1.03	
Additional time-varying covaraiates									
depression		1.13			1.17			2.84***	
parenting stress		1.03			1.02			1.02	
social support		1.35			0.75			1.31	
household income		1.00			1.00			1.00	
material hardship		1.19**			1.30*			1.34**	
unemployed		0.93			0.67+			0.53**	
Moderators									
single*fathers' child support			1.01			0.79			0.98
single*father pays on time			0.66*			0.62			0.64+
single*fathers' in kind support			0.98+			0.96			0.98
single*fathers' direct care			1.00			0.94+			0.98
single*fathers' play			0.99			0.95			0.98
N		1,413			574			753	

Note: missing information on covariates imputed

[a]Model 1 includes relationship transition and child and parent age

[b]Model 2 replicates model 1 but includes each of the listed time-varying mediators

[c] Model 3 adds an interaction for each moderator to model 2
[d]When physical neglect is the outcome, the material hardship scale omits overlapping items

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Chapter 5: Conclusion

Together, the chapters in this dissertation explored the ways in which parents' relationship transitions increase or decrease the risk for child maltreatment, the role of the magic moment in predicting involvement in parenting by non-resident fathers, and the ways in which such parenting involvement moderates the risk for child maltreatment associated with mothers' transitions to being single. The dissertation contributes to both the family sociology/demography literature and the child maltreatment literature in a number of ways. First, it applies new findings about the importance of parents' relationship transitions, as opposed to marital status, to the context of child maltreatment. Second, it applies theory about the "magic moment" to non-resident fathers, and takes a new methodological approach that may reduce bias. Third, the child maltreatment literature has largely not focused on the role of fathers in the risk for child maltreatment. Drawing on emerging evidence from the sociological and psychological literatures indicating that father involvement in parenting may benefit child wellbeing, the dissertation addresses this gap in the literature by examining whether non-resident fathers' economic contributions and involvement in parenting moderates associations between mothers' transitions to being single and the risk for child maltreatment.

This concluding chapter provides a brief overview of the findings from each of the chapters, offers potential implications for social work and social policy, and discussing future research.

REGRESSION RESULTS

Chapter 2 investigated associations between mothers' relationship transitions and the risk for child abuse and neglect, and fathers' relationship transitions and the risk for abuse. Results

from Chapter 2 indicate that mothers' transitions to being married to the focal child's biological father or a social father are associated with a decrease in the likelihood of maternal child neglect, and mothers' transitions to cohabiting with the focal child's biological father are associated with a decrease in the risk for maternal child abuse and neglect. However, mothers' transitions to cohabiting with a social father are associated with an increase in the likelihood of spanking. I also find that mothers' transitions to being single are associated with increases in the likelihood of high frequency spanking and psychological aggression (indicators of the risk for abuse), and neglect. Although some of the measures of mothers' health, economic wellbeing, and resources are significant, none mediate the above associations. Last, fathers' transitions to being co-residential with the focal child's mother are associated with an increase in the likelihood of paternal child abuse, while fathers' transitions to being non-residential are associated with decreases in the risk for paternal child abuse.

Chapter 3 used propensity score matching techniques to ask whether non-resident fathers' presence at the birth of a child was associated with fathers' involvement in parenting when children were 1, 3, and 5 years old. Propensity score matching may help to reduce some of the bias associated with which fathers are present at birth and which fathers remained engaged with their children over time. However, it is still possible that unobservable characteristics of fathers and mothers will influence selection into presence at the birth of a child or later involvement in parenting. Results from this work indicate that non-resident fathers' presence at the birth of a child is associated with increased involvement in direct care and play activities by such fathers when children were 1, 3, and 5 years old, but with diminishing returns as children aged.

Chapter 4 drew on findings from Chapters 2 and 3, and asked whether non-resident fathers' economic contributions and involvement in parenting moderated associations between

mothers' transitions to being single and the risk for child maltreatment, and whether results differed by race/ethnicity. Overall, the results indicate that non-resident fathers' economic contributions and involvement in parenting play an important role in moderating the association between mothers' transitions to being single and the risk for child neglect. Results also revealed some differences by race/ethnicity. Transitions to being single may confer greater risk for maltreatment among Black mothers than for white or Hispanic mothers, but non-resident fathers' involvement may also have a more important protective role for such families.

Implications for Social Work Practice and Policy

The findings from this dissertation point to a number of potentially important implications for social work practice and policy. First, results from Chapter 2 may imply that traditional risk assessment tools used by Child Protective Services agencies which focus on mothers' current marital status may miss important nuances about the role of relationship transitions in the risk for child maltreatment. Single motherhood has long been thought to be a key risk factor for child abuse. However, results from Chapter 2 find limited evidence that mothers' *transitions* to being single are associated with the risk for child abuse, although Chapter 4 finds that Black, but not white or Hispanic, mothers' transitions to being single may indeed be associated with the risk for child abuse.

In addition, the presence of social fathers in the household has frequently been considered a risk for child maltreatment. However, findings from Chapter 2 generally suggest that social fathers do not increase the likelihood of maternal child maltreatment. Overall, results from this dissertation suggest that Child Protective Services agencies should take a more nuanced view of marital status, incorporating programming and services that might help to smooth mothers'

transitions to new relationship statuses and any associated increases in the risk for child maltreatment.

Second, findings from Chapters 3 and 4 indicate a greater need for interventions and risk assessment tools that include fathers. Results from Chapter 3 indicate that simple policy interventions, such as encouraging non-resident fathers' presence at the hospital at the time of birth of a child, may increase father involvement in parenting. Similarly, Chapter 4 indicates that non-resident fathers' economic contributions and involvement in parenting may help to buffer the association between mothers' transitions to being single and the risk for child neglect. Child neglect has been a particularly sticky problem in the United States, and findings from this work indicate that involving non-resident fathers in harm reductions plans may be a simple but important step forward.

FUTURE RESEARCH

This dissertation examined the role of relationship transitions and non-resident fathers' involvement in parenting and the risk for child maltreatment. Scholars have increasingly recognized the importance of relationship transitions within the family system, but there is still much to understand. In addition, child maltreatment researchers have largely focused on the increased risk for child maltreatment associated with fathers' presence in the household, but there are likely many ways in which fathers may reduce the risk for child maltreatment.

Future research should investigate the role of mothers' relationship transitions and children's social-emotional wellbeing. A long history of empirical research has found that children growing up in non-marital relationships do worse than children with married parents (McLanahan & Sandefur, 1994), and that boys may be more adversely affected than girls (Autor,

Figlio, Karbownik, Roth, & Wasserman, 2015). However, scholars have increasingly recognized that static marital status likely captures an incomplete picture of the true workings of the family (Fomby & Cherlin, 2007). It may be that relationship transitions have unique associations with child wellbeing compared to marital status.

Future research should also investigate the role that fathers may play in the risk for child maltreatment. Prior research has largely focused on the ways in which fathers' unemployment or absence increases the risk for child maltreatment (Lindo, Schaller, & Hansen, 2013). However, findings from this dissertation indicate that there may be ways in which fathers' involvement in parenting may protect against the risk for maternal child maltreatment. Research on fathers' role in the risk for child maltreatment has been hampered by a prevailing focus on mothers, which has resulted in less data and information about fathers. More and better data about fathers, social fathers, and the family system in general is needed to better inform research, policy, and practice about fathers' role in the risk and prevention of child maltreatment.

REFERENCES

Autor, D., Figlio, D., Karbownik, K., Roth, J., & Wasserman, M. (2015). "Family disadvantage and the gender gap in behavioral and educational outcomes." *Institute for Policy Research Northwestern University Working Paper Series,* WP-15-16.

Fomby, P., & Cherlin, A. J. (2007). "Family instability and child well-being." *American Sociological Review*, *72*, 181-204.

Lindo, J. M., Schaller, J., & Hansen, B. (2013). "Economic conditions and child abuse." *IZA Discussion Paper No. 7355.*

McLanahan, S. & Sandefur, G. (1994). *Growing Up With a Single Parent: What Hurts, What Helps.* Cambridge, MA: Harvard University Press.